

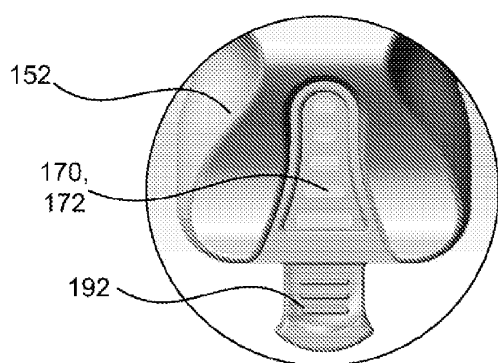


FIG. 1C

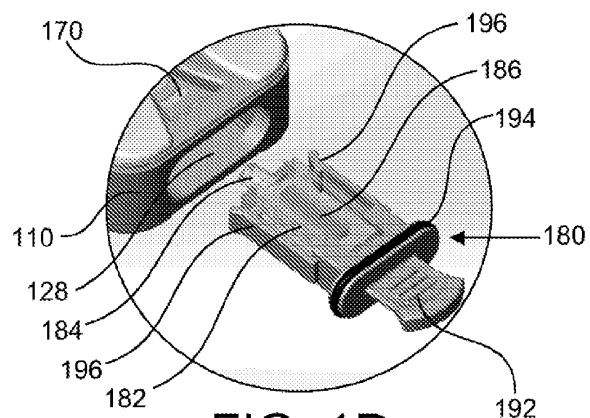


FIG. 1D

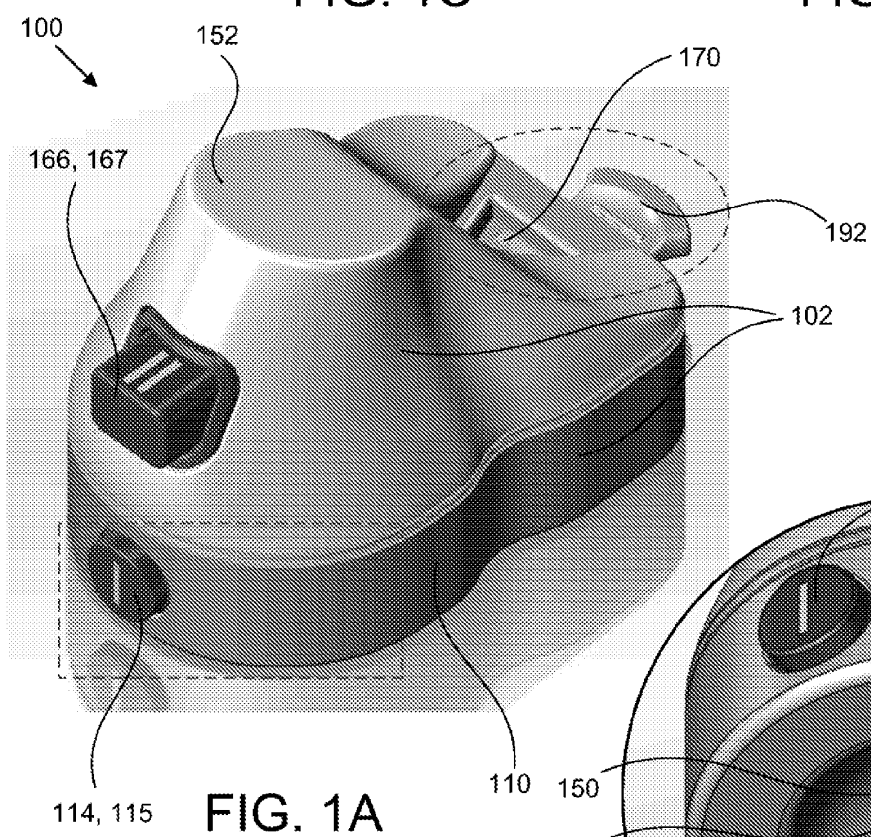


FIG. 1A

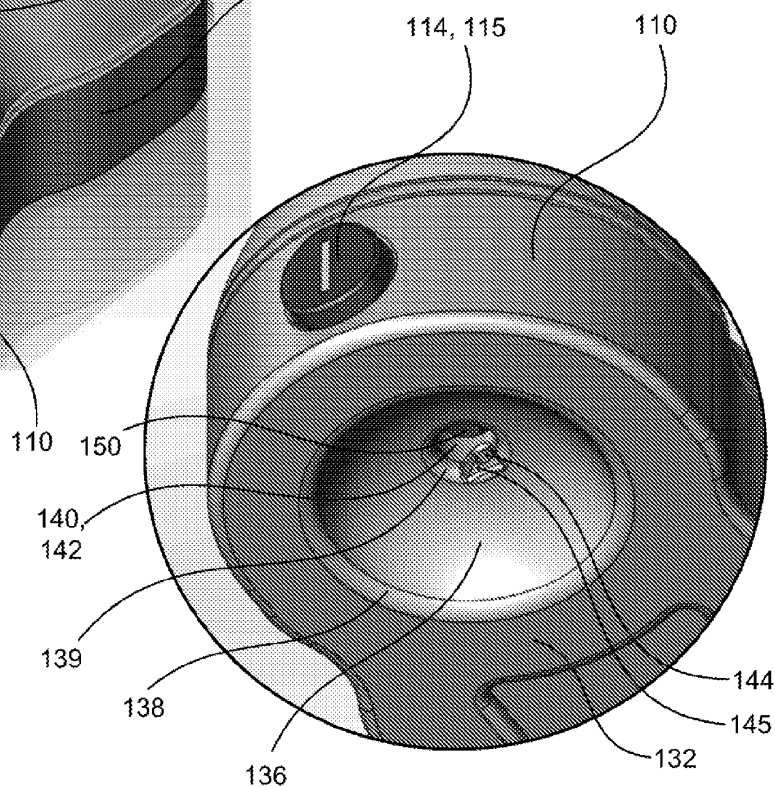


FIG. 1B

WO 2018/132515
124

PCT/US2018/013223

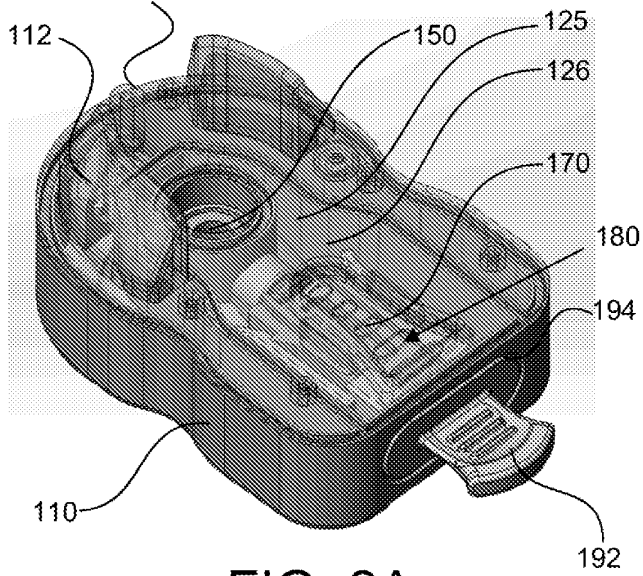


FIG. 2A

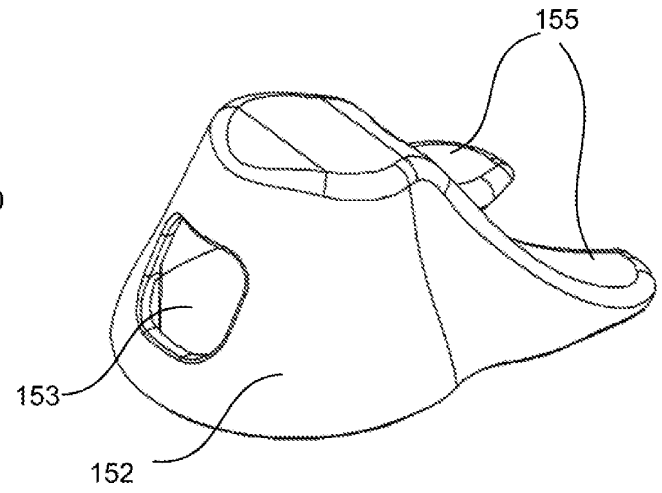


FIG. 2B

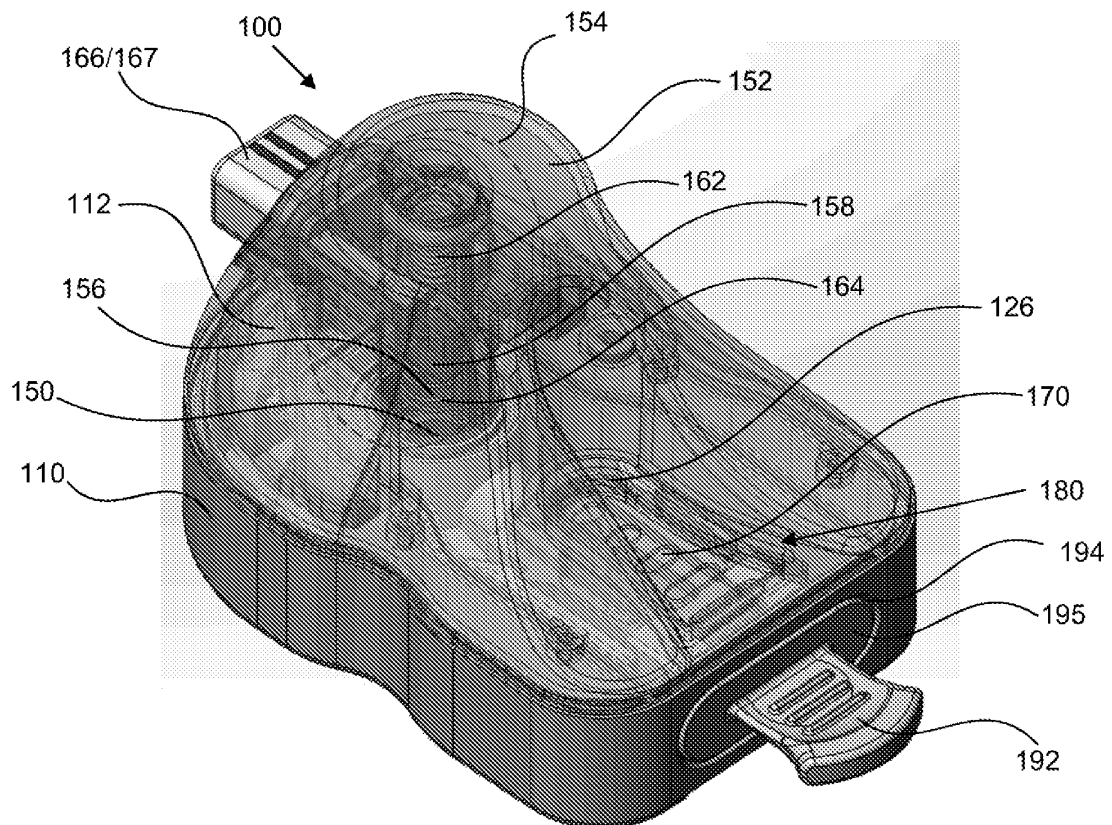


FIG. 2C

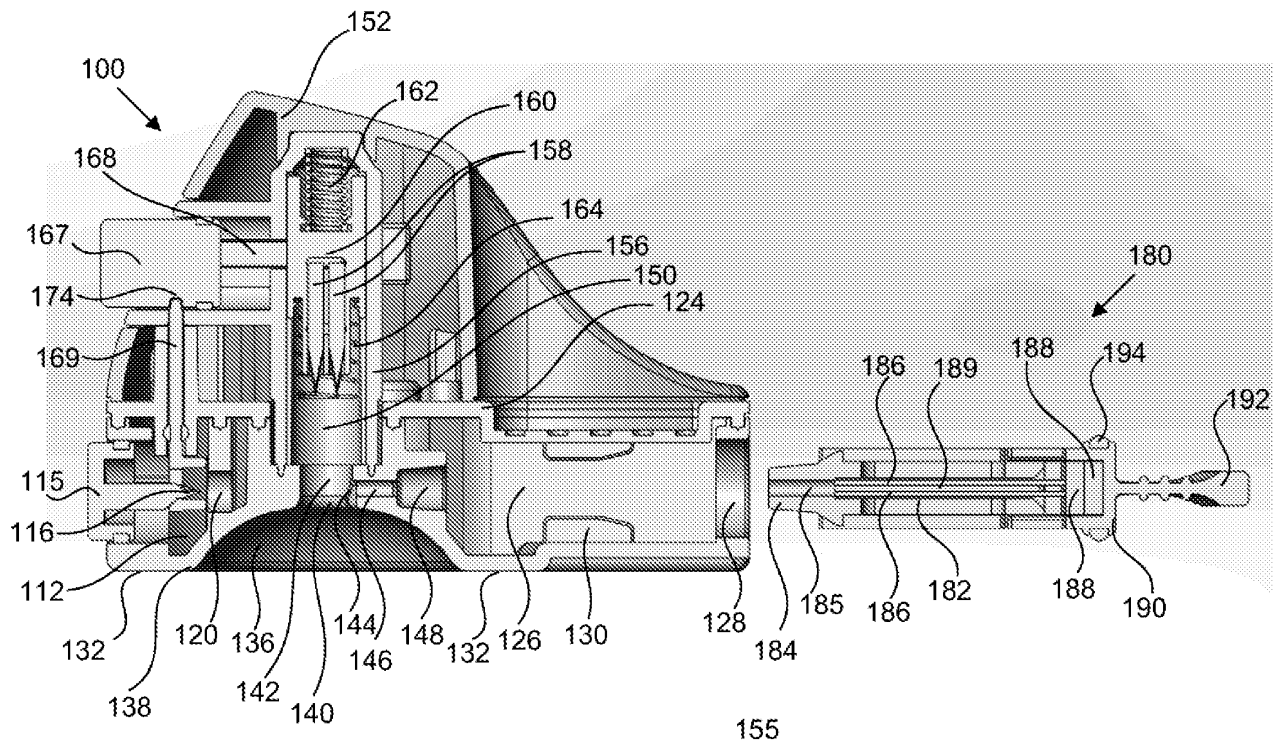


FIG. 3A

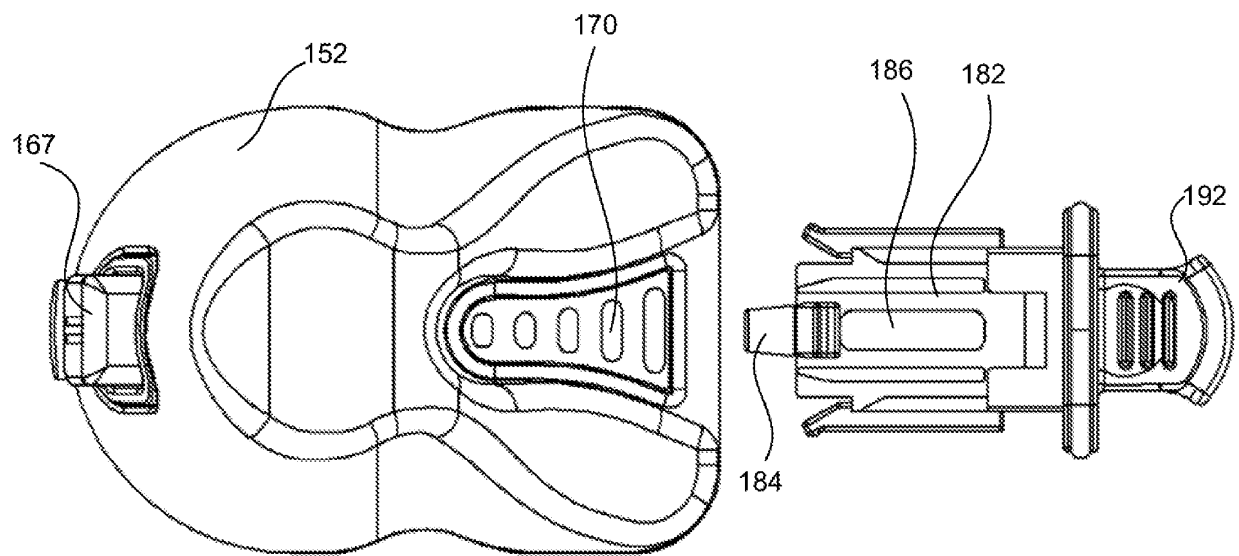


FIG. 3B

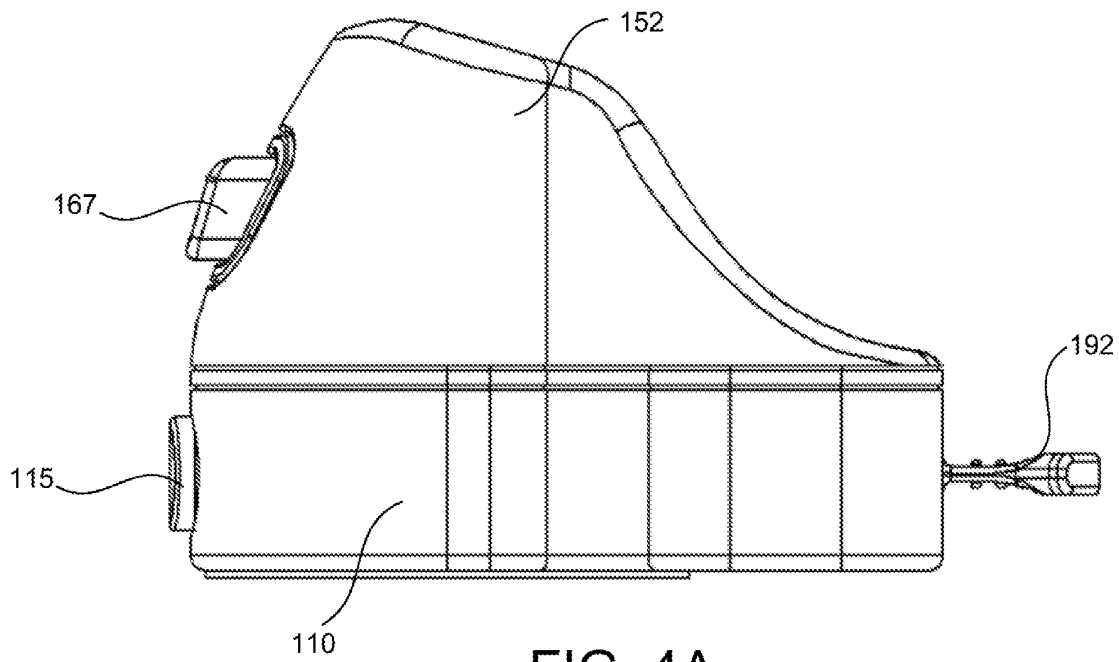


FIG. 4A

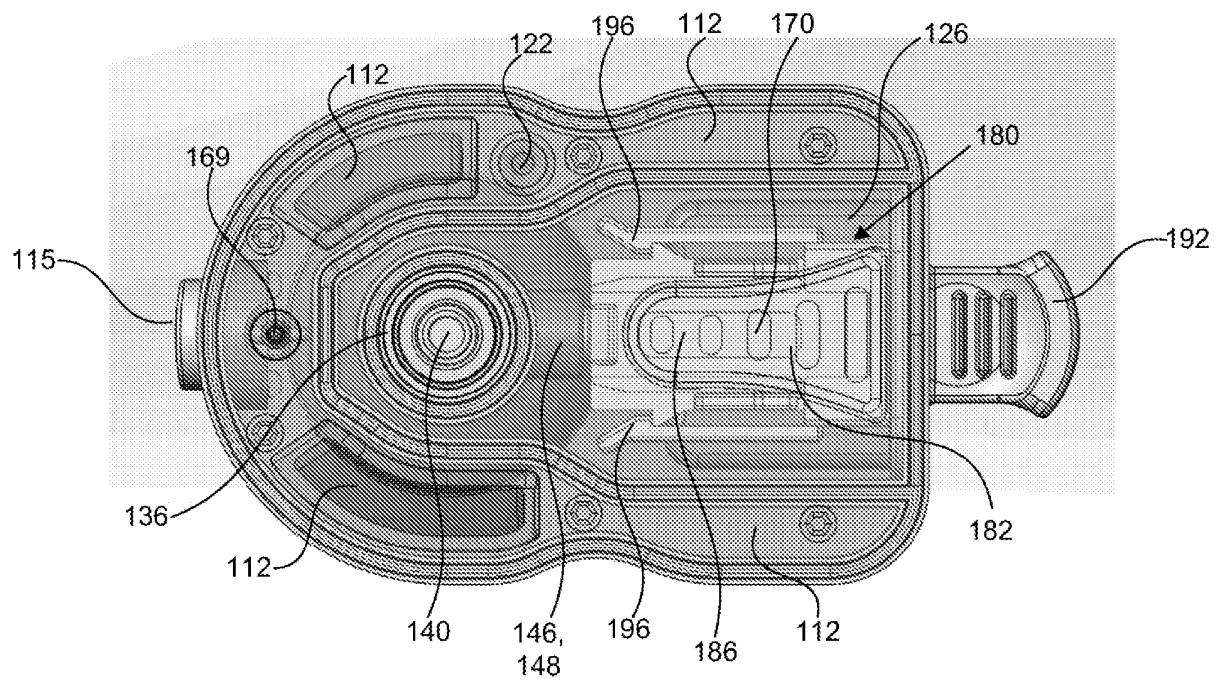


FIG. 4B

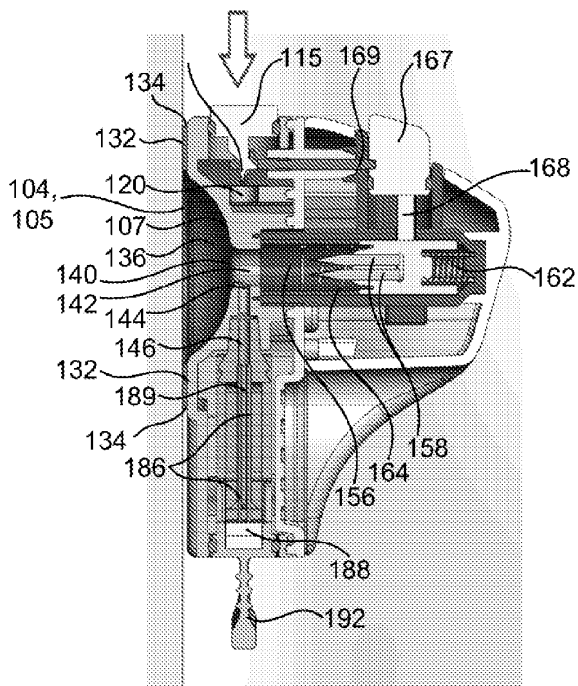


FIG. 5A

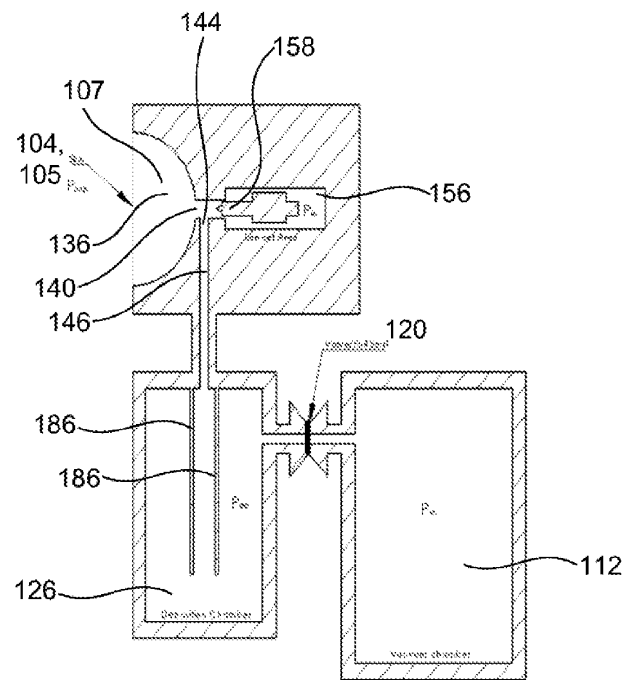


FIG. 5B

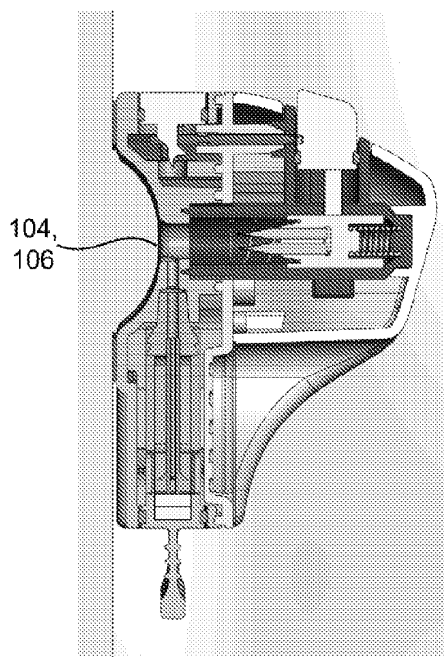


FIG. 6A

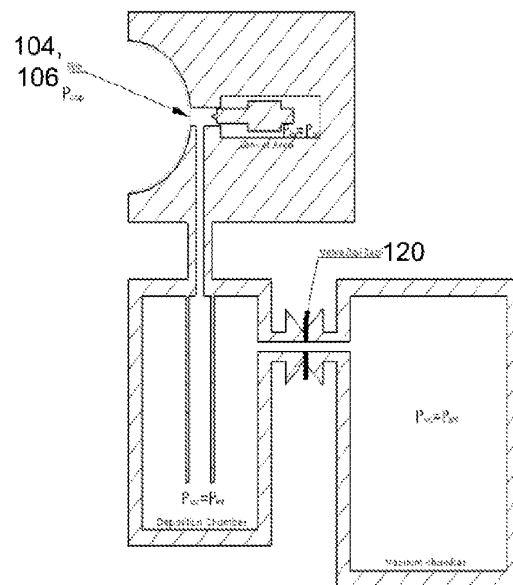


FIG. 6B

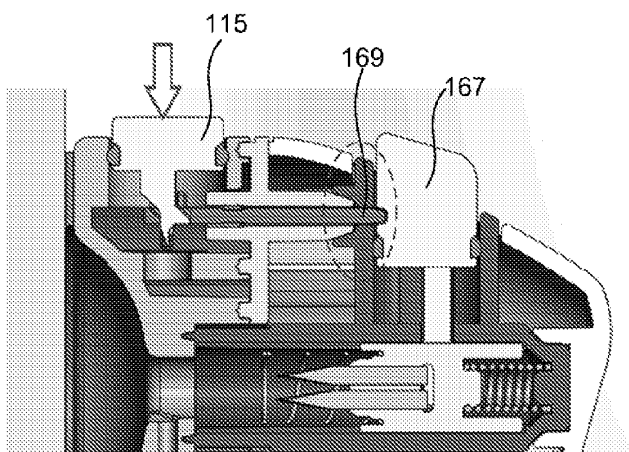


FIG. 7A

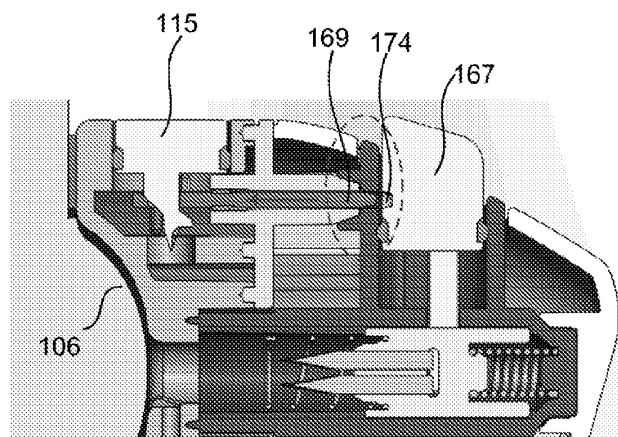


FIG. 7B

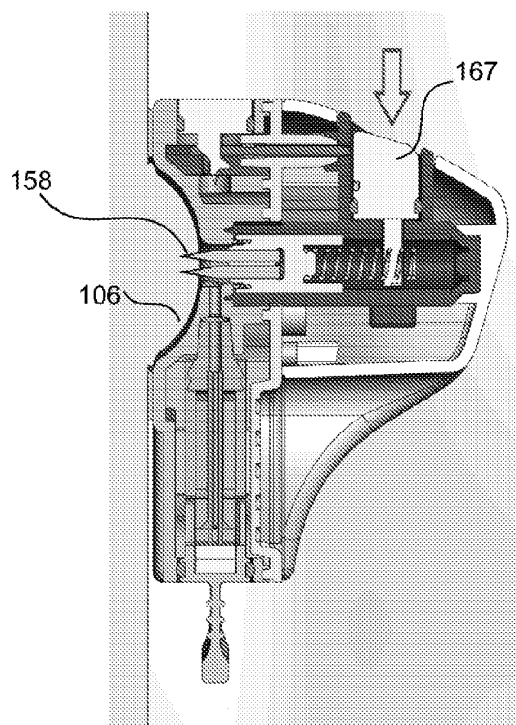


FIG. 8A

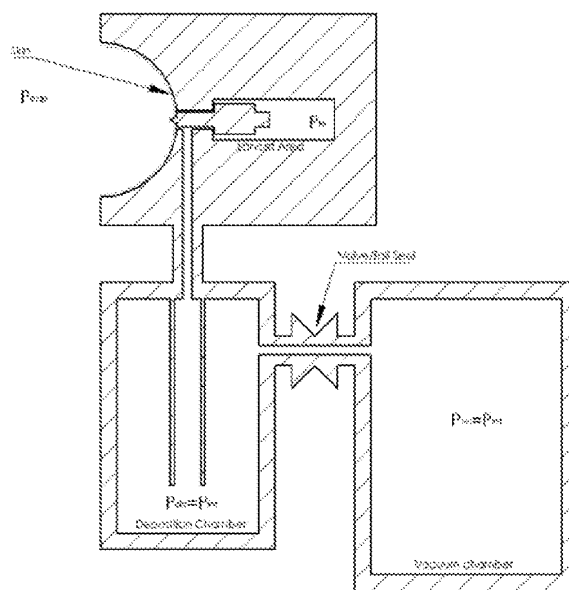


FIG. 8B

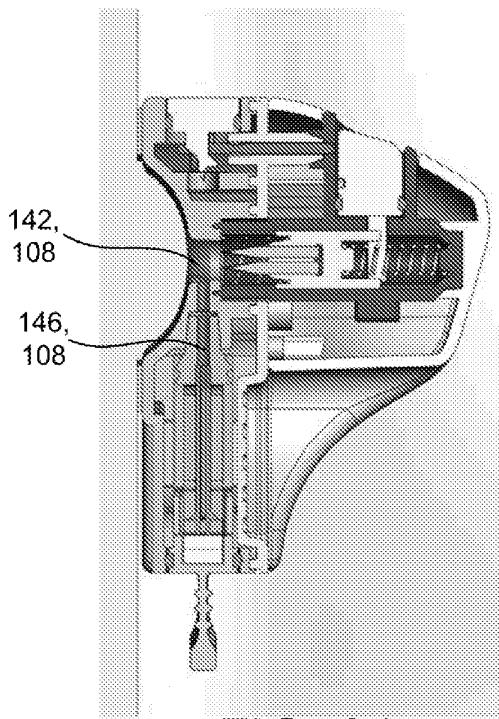


FIG. 9A

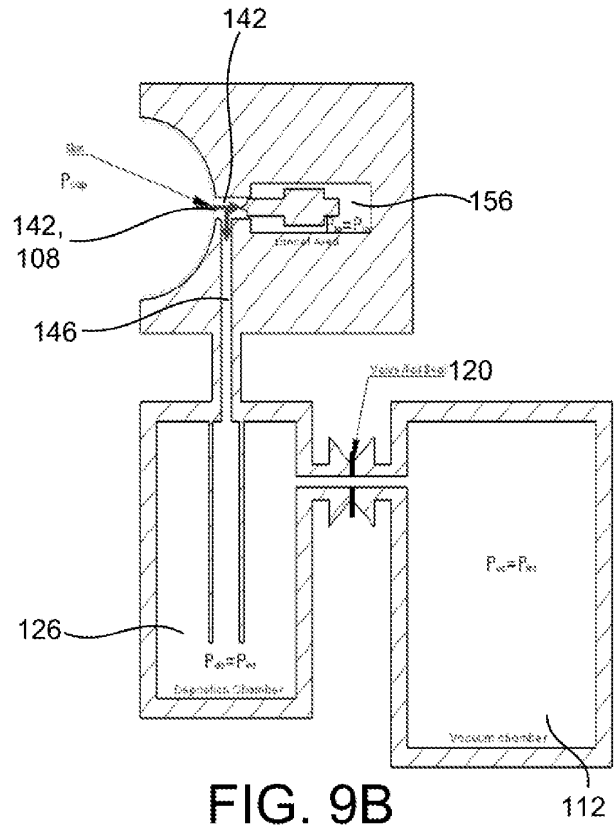


FIG. 9B

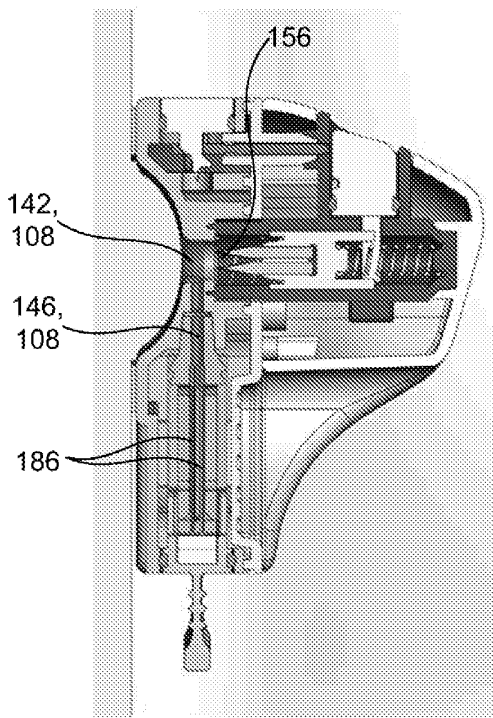


FIG. 10A

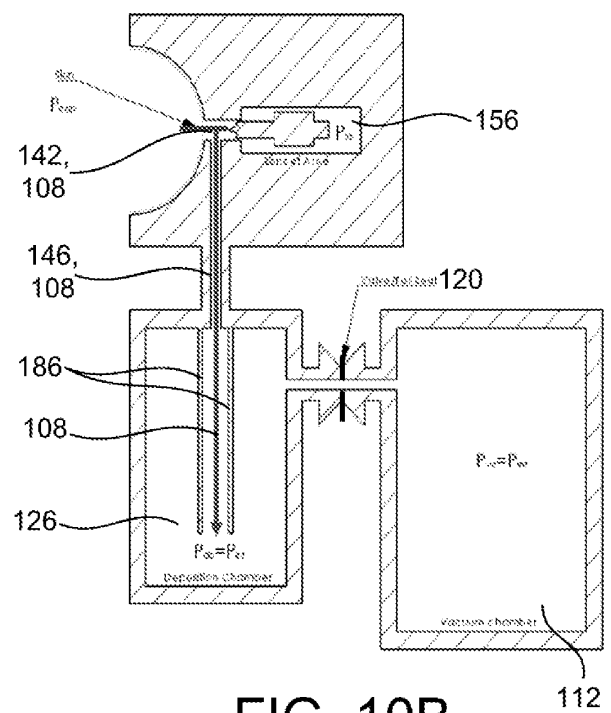


FIG. 10B

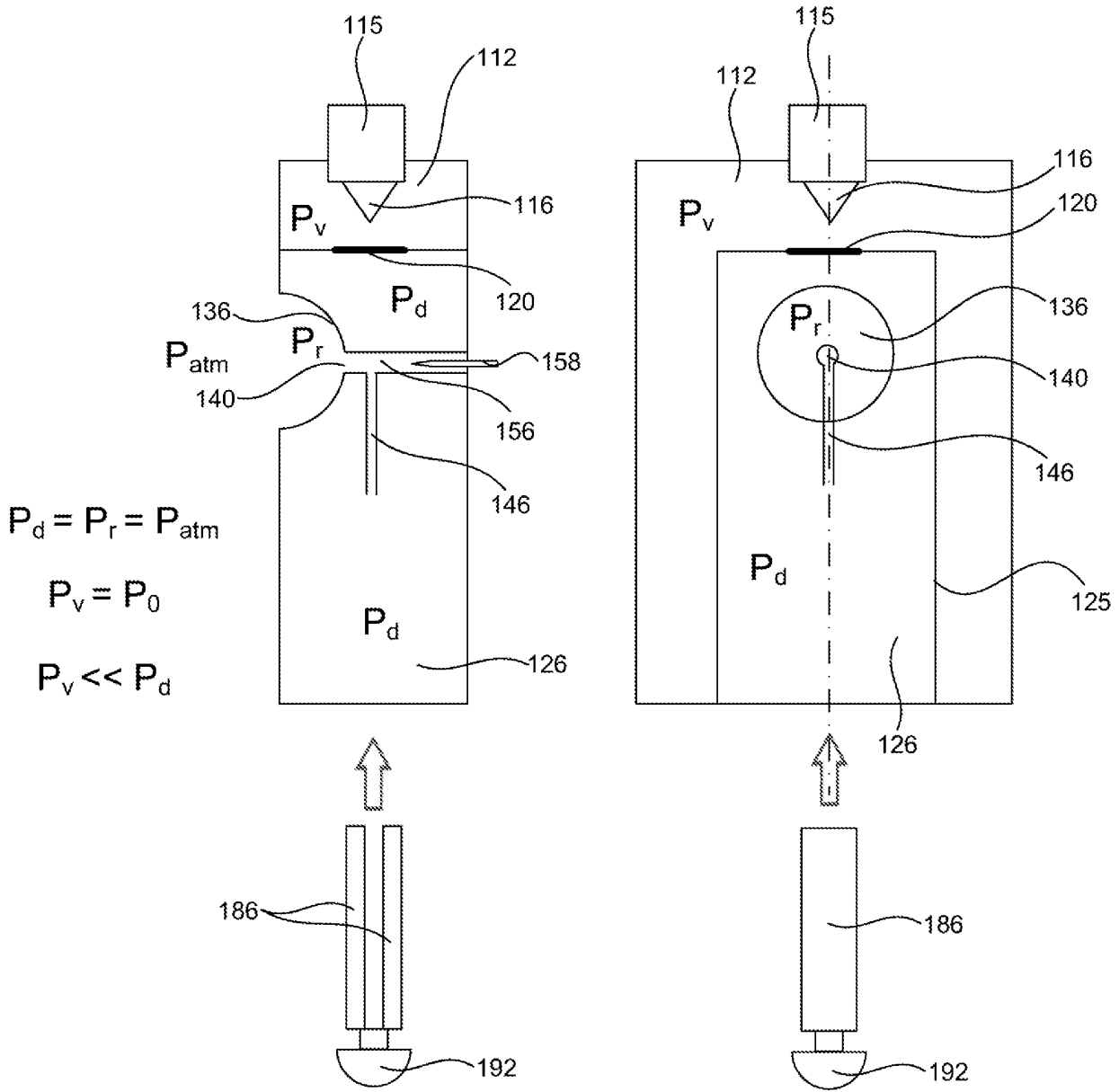


FIG. 11A

FIG. 11B

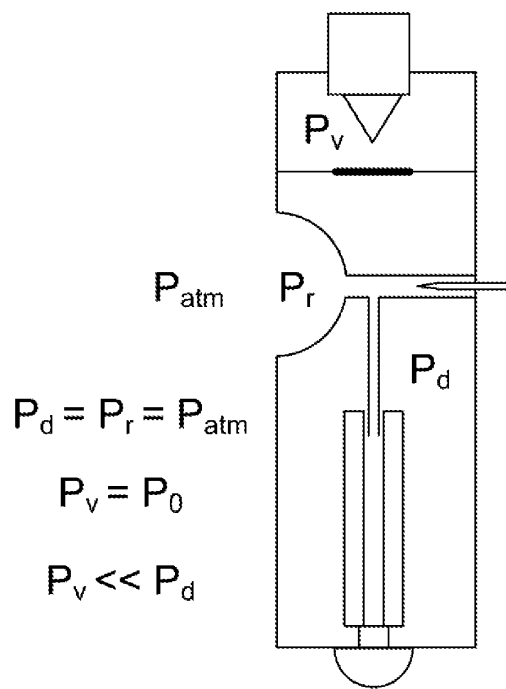


FIG. 12A

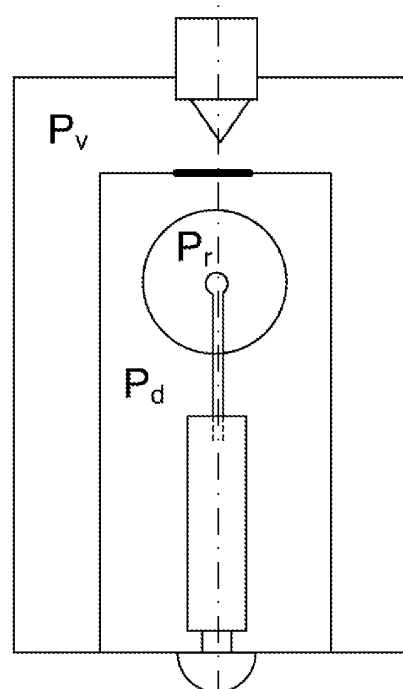


FIG. 12B

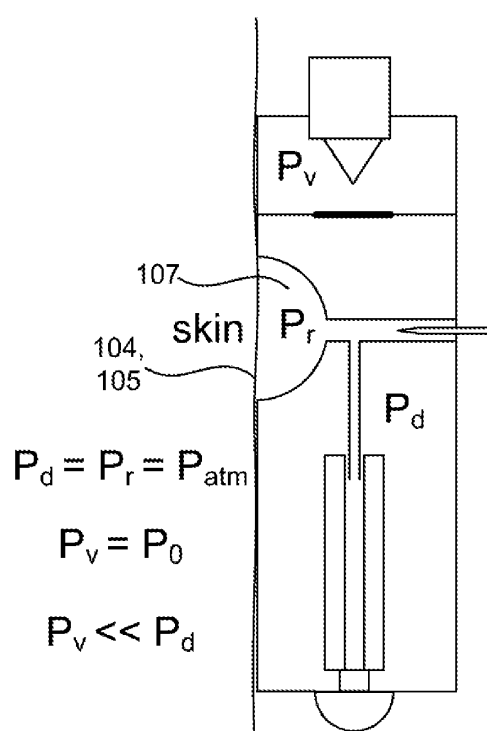


FIG. 13A

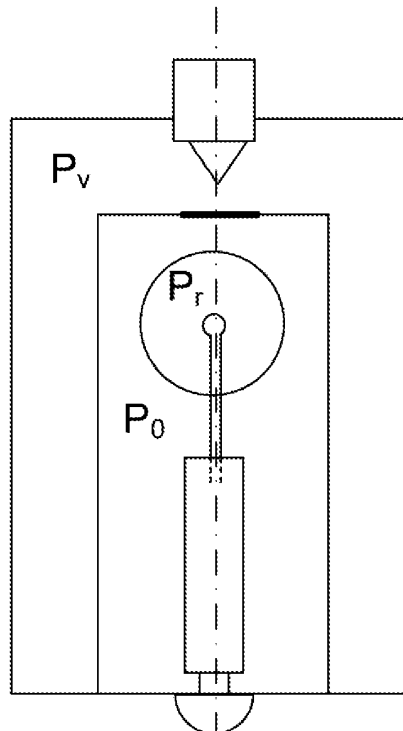
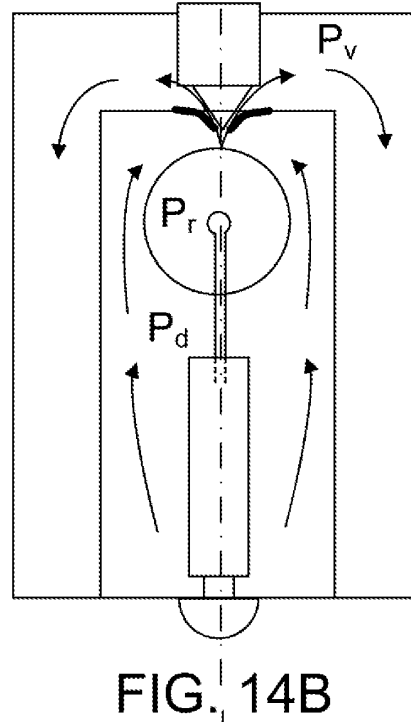
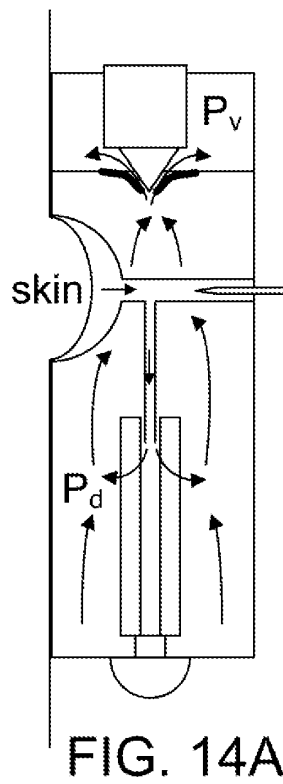
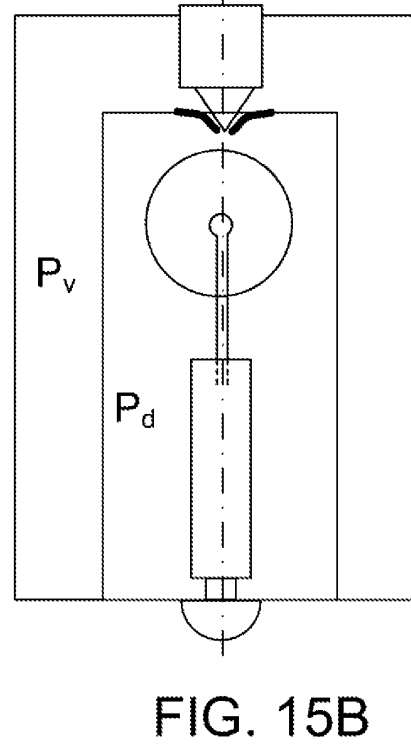
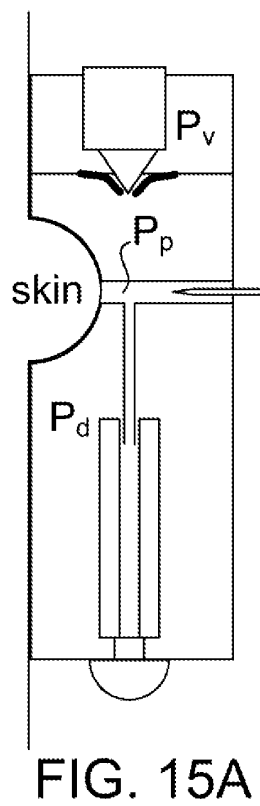


FIG. 13B

P_d and P_r decrease
 P_v increases



$P_d = P_v = P_p = P_1$
 $P_0 < P_1 < P_{atm}$



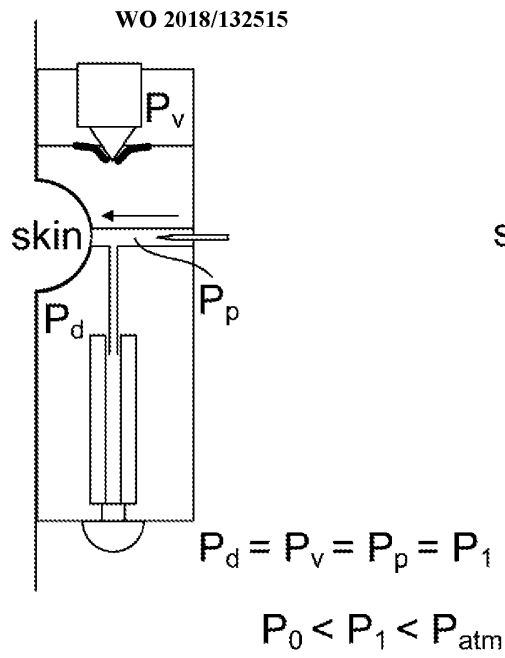


FIG. 16A

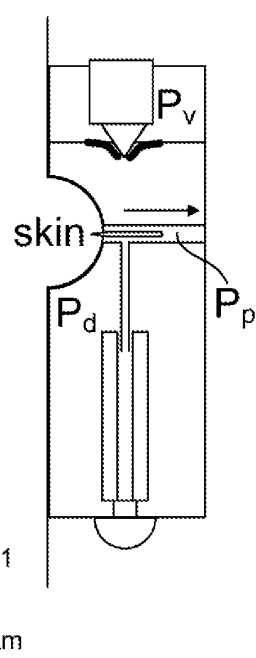


FIG. 16B

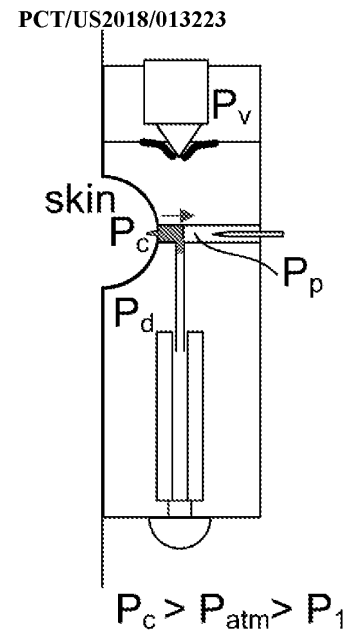


FIG. 16C

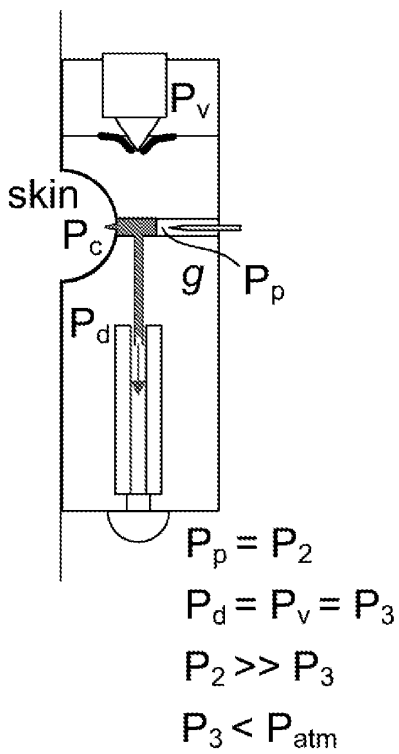


FIG. 16D

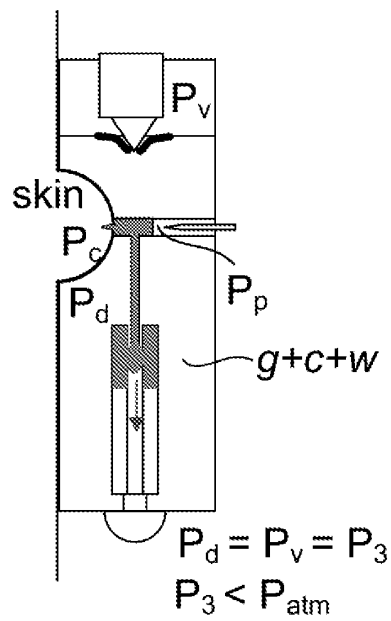


FIG. 16E

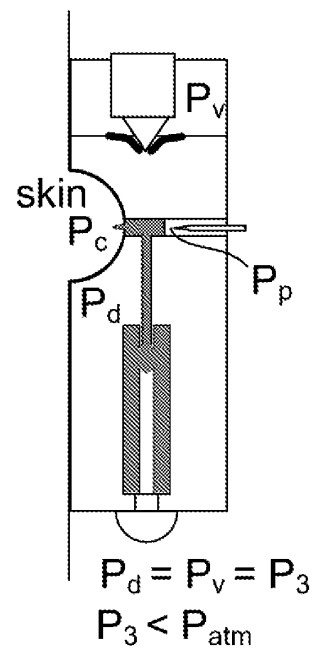


FIG. 16F

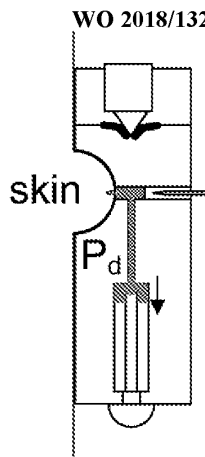


FIG. 17A

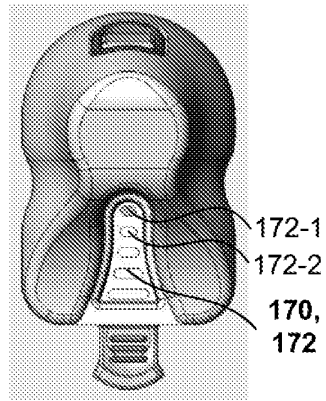


FIG. 17B

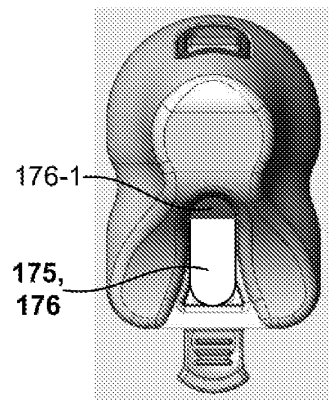


FIG. 17C

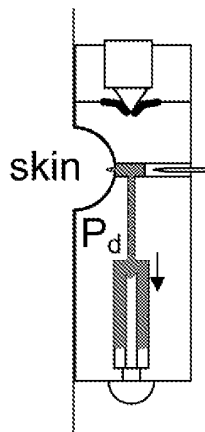


FIG. 18A

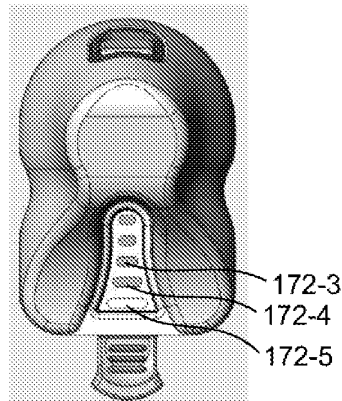


FIG. 18B

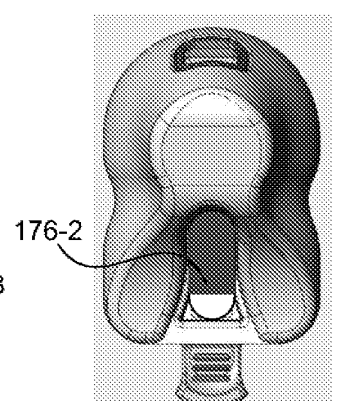


FIG. 18C

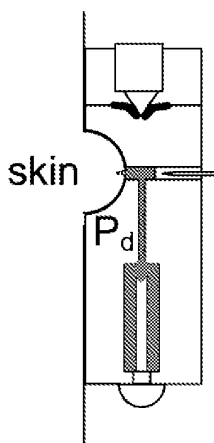


FIG. 19A

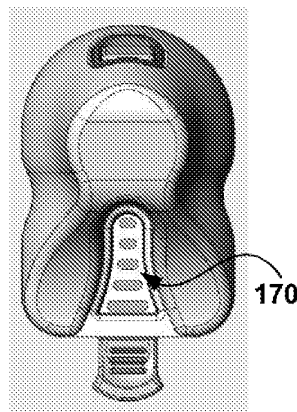


FIG. 19B

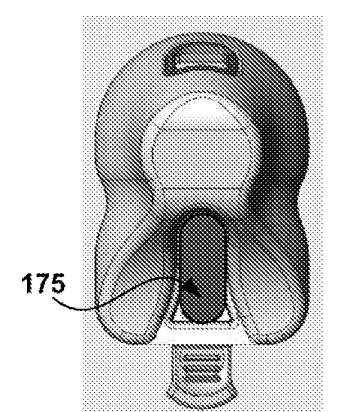


FIG. 19C

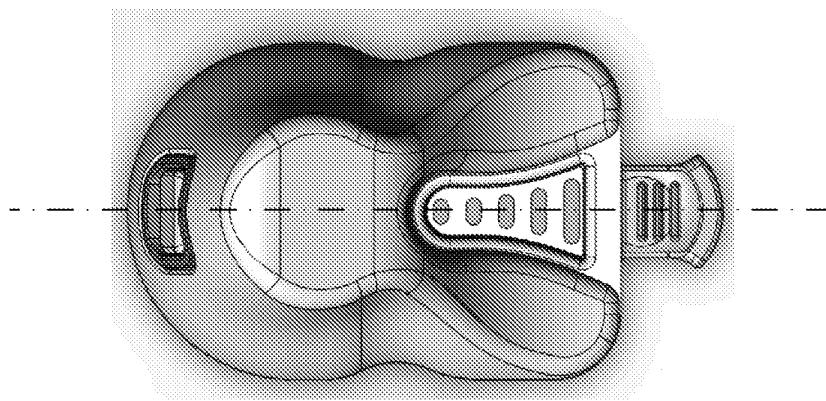


FIG. 20A

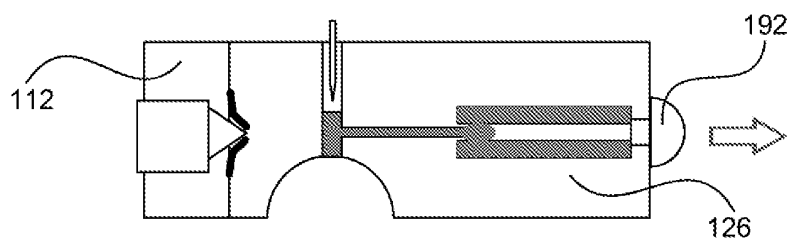


FIG. 20B

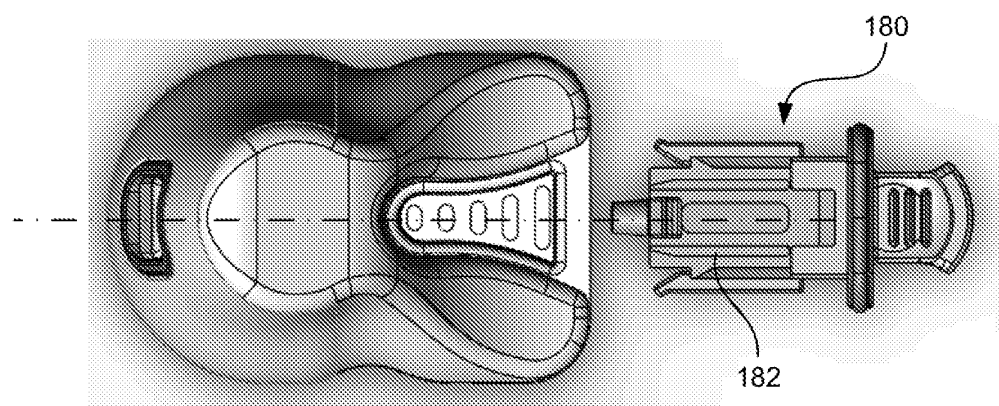


FIG. 21A

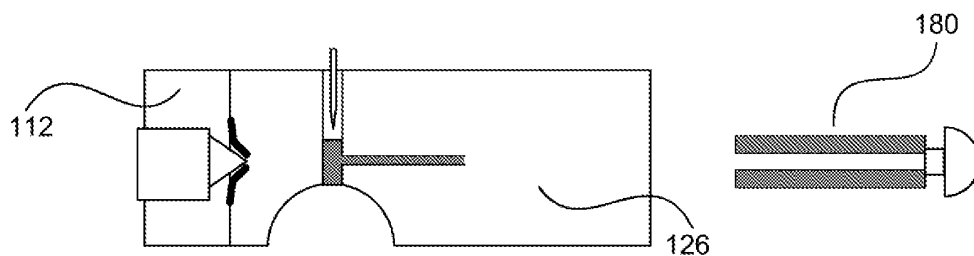


FIG. 21B

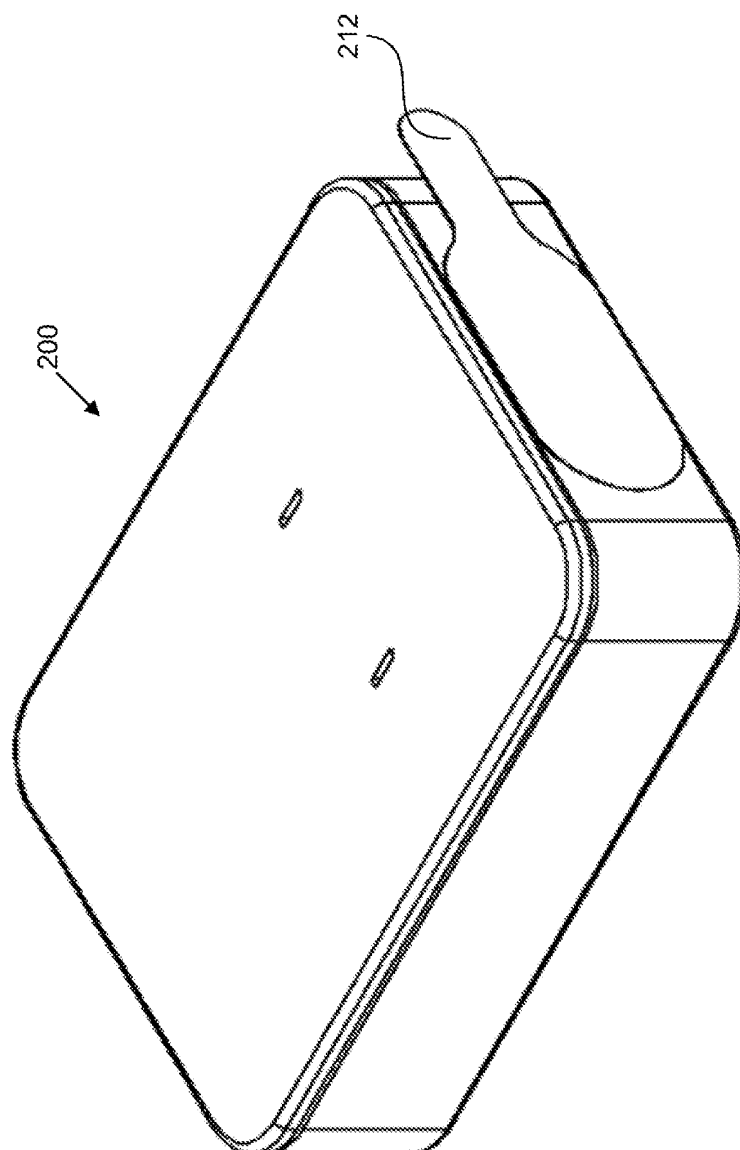


FIG. 22A

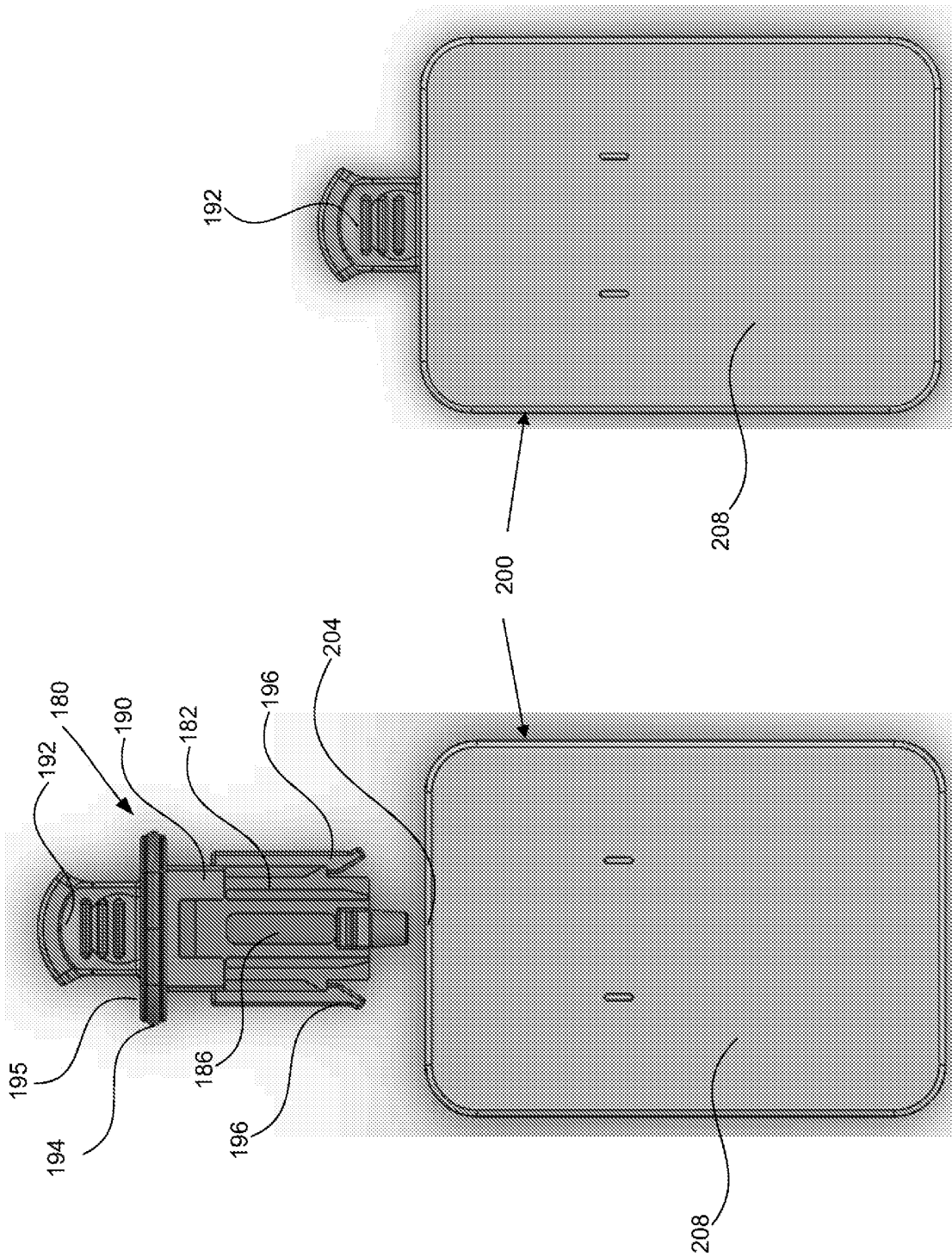
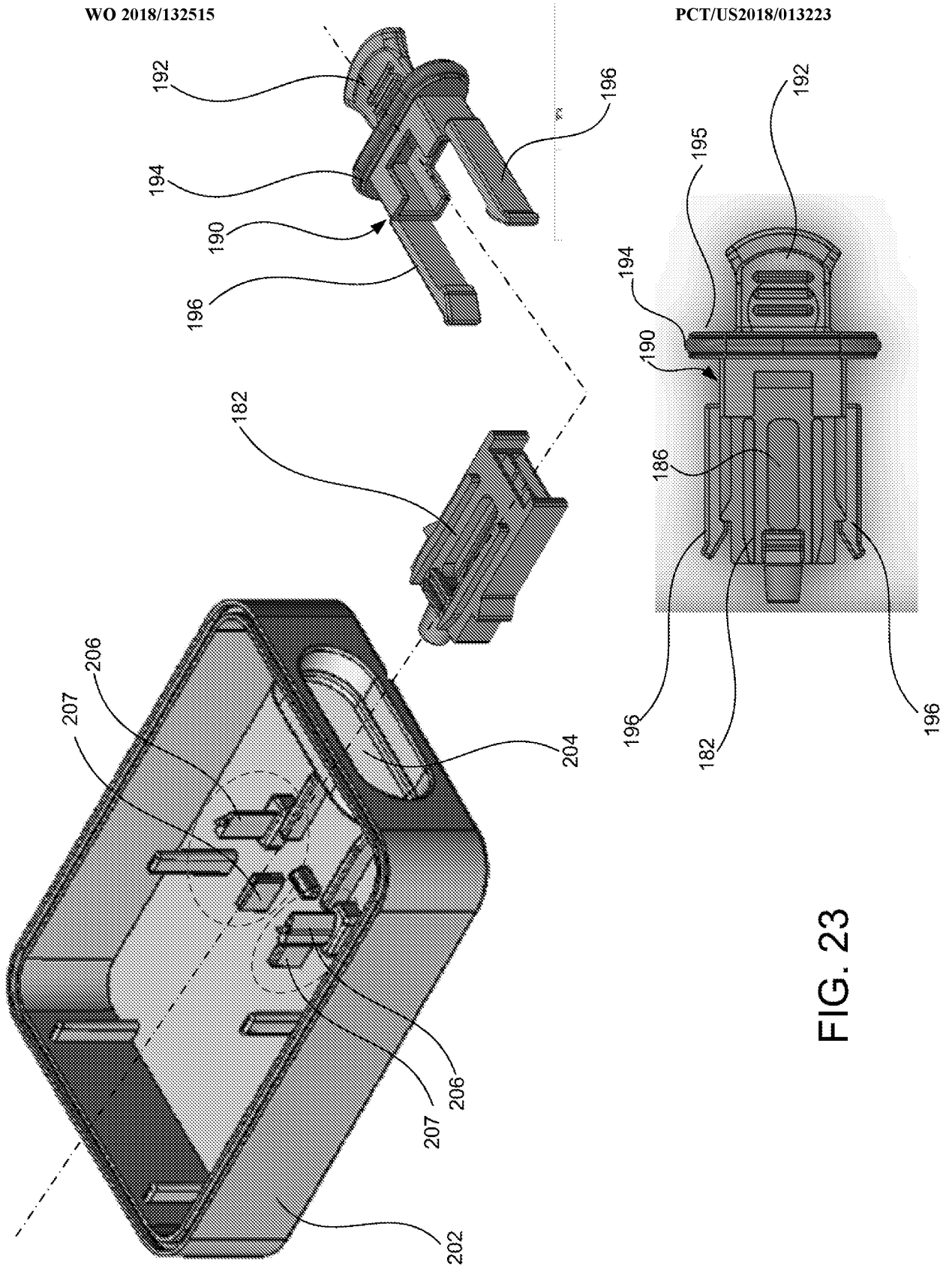


FIG. 22C

FIG. 22B



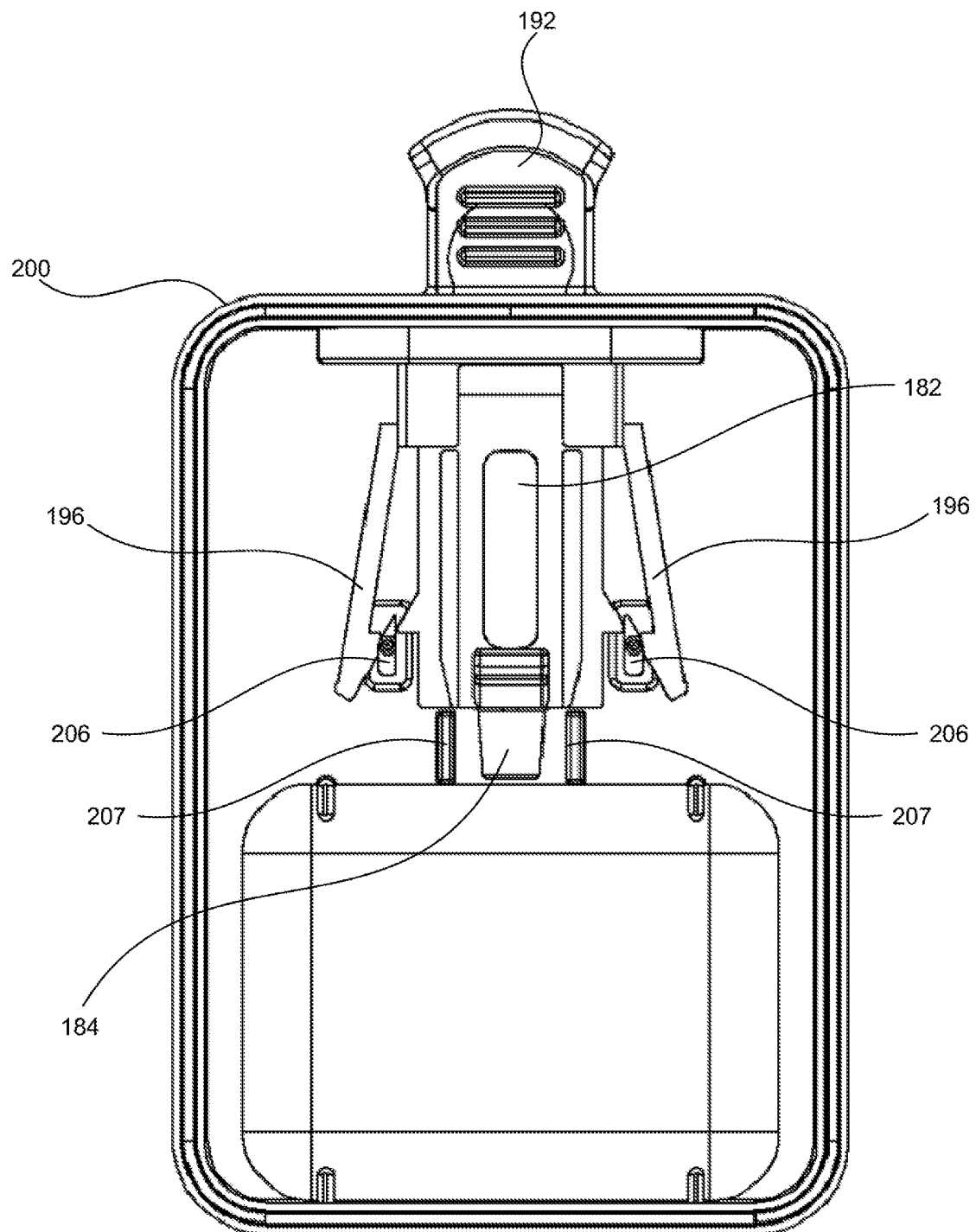


FIG. 24A

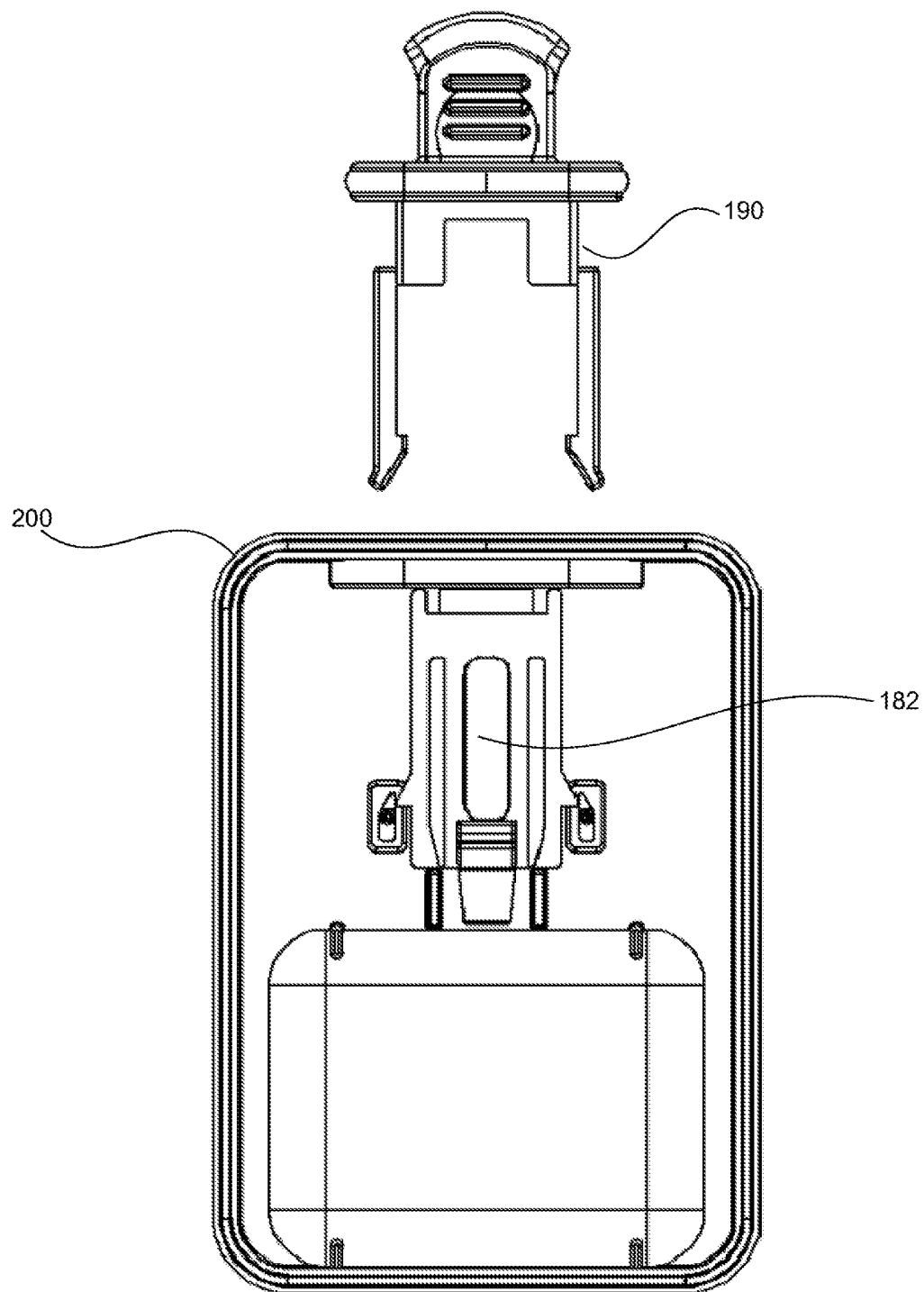


FIG. 24B

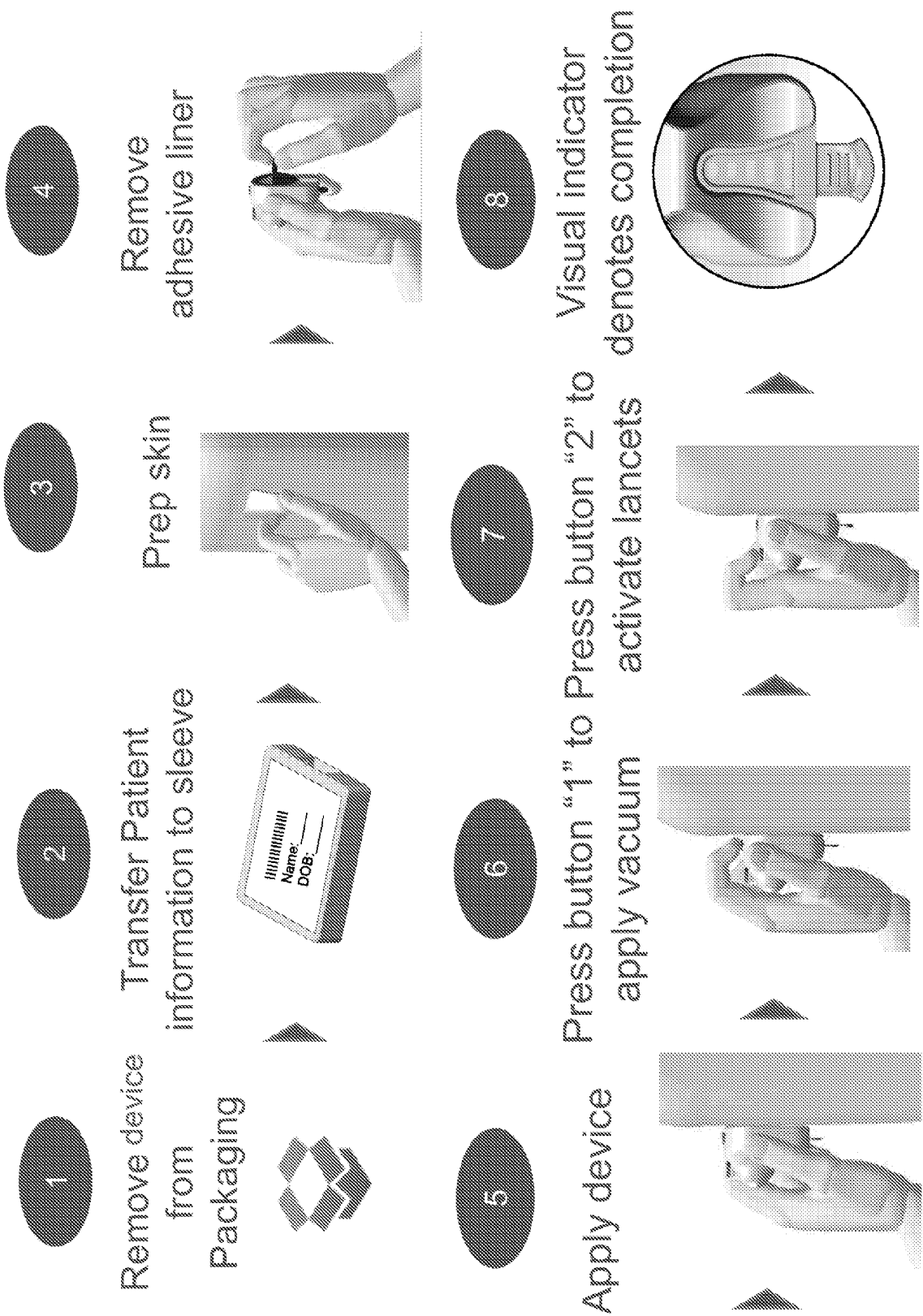


FIG. 25A

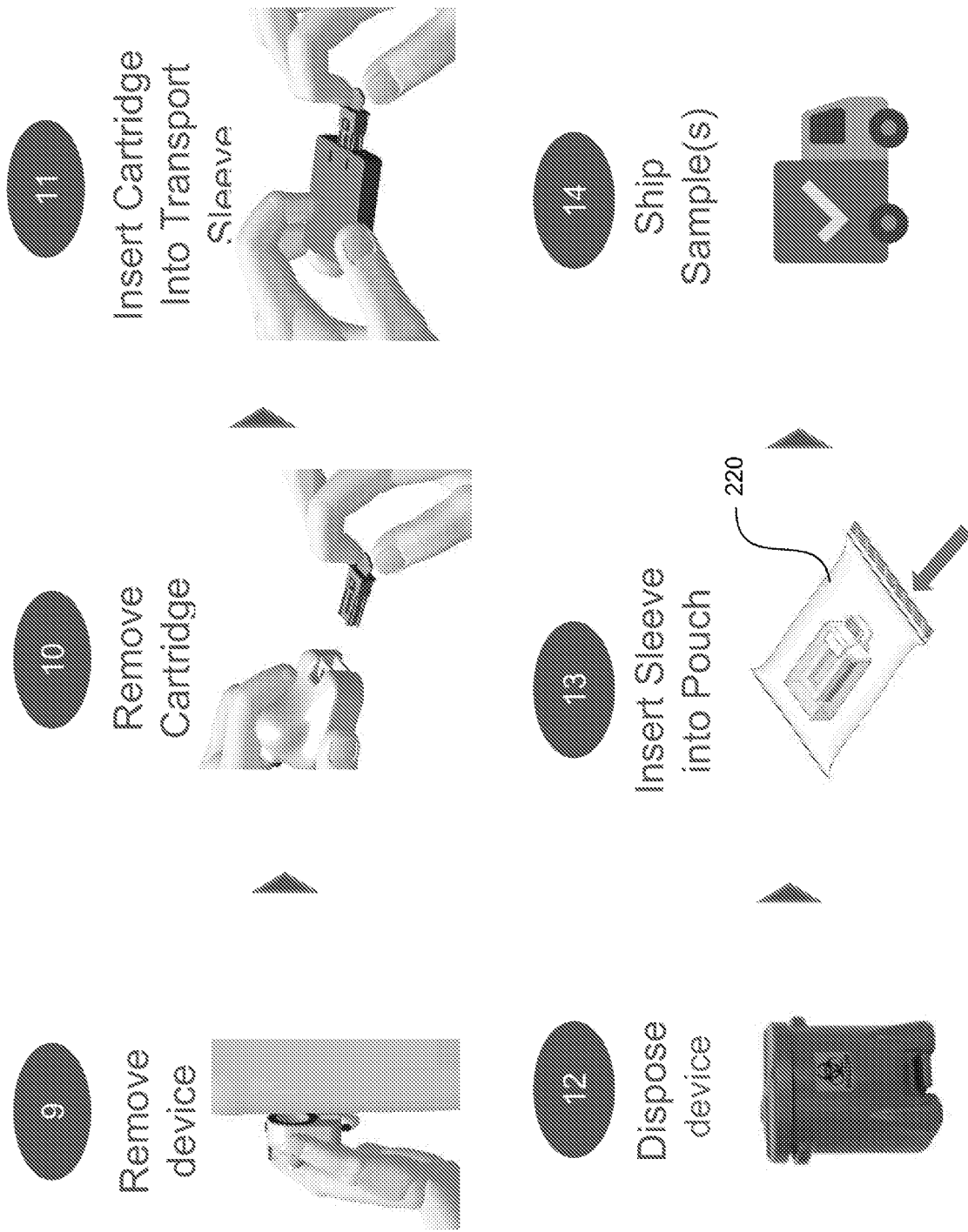


FIG. 25B

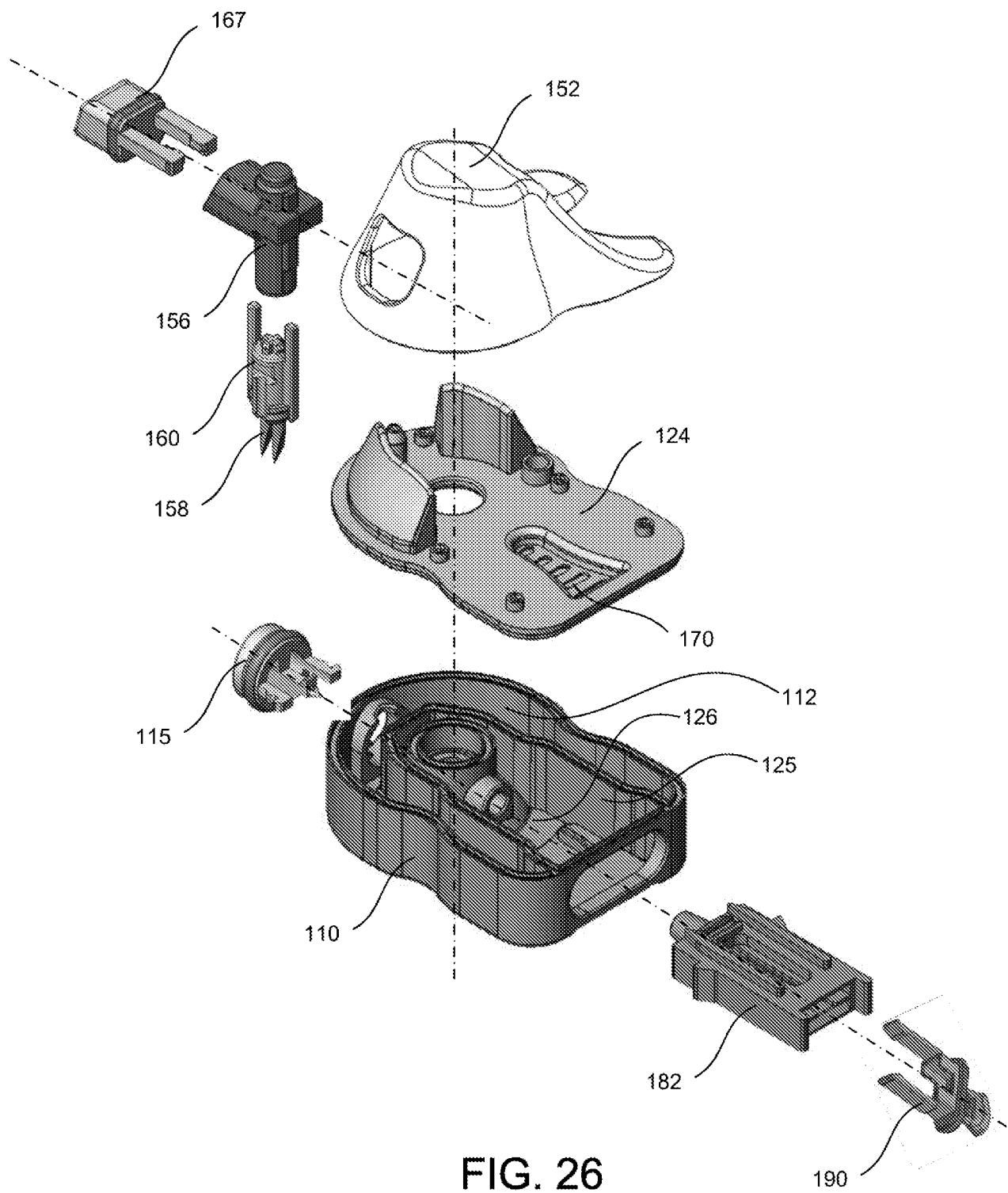


FIG. 26

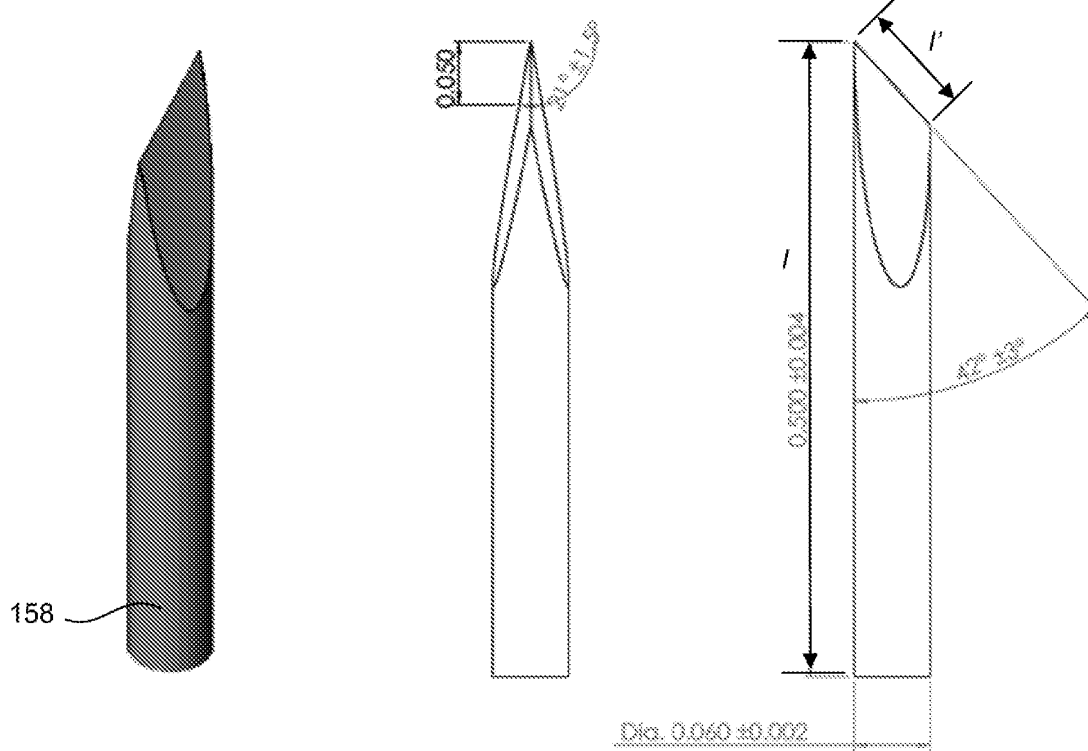


FIG. 27A

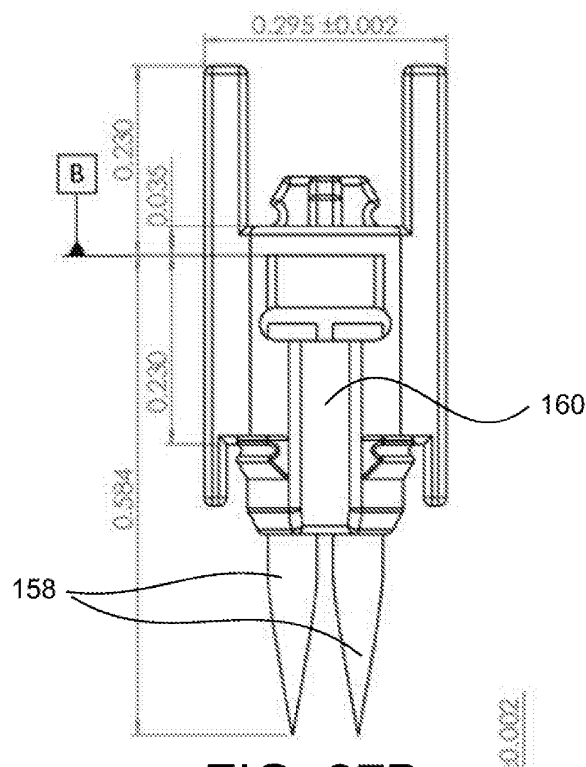


FIG. 27B

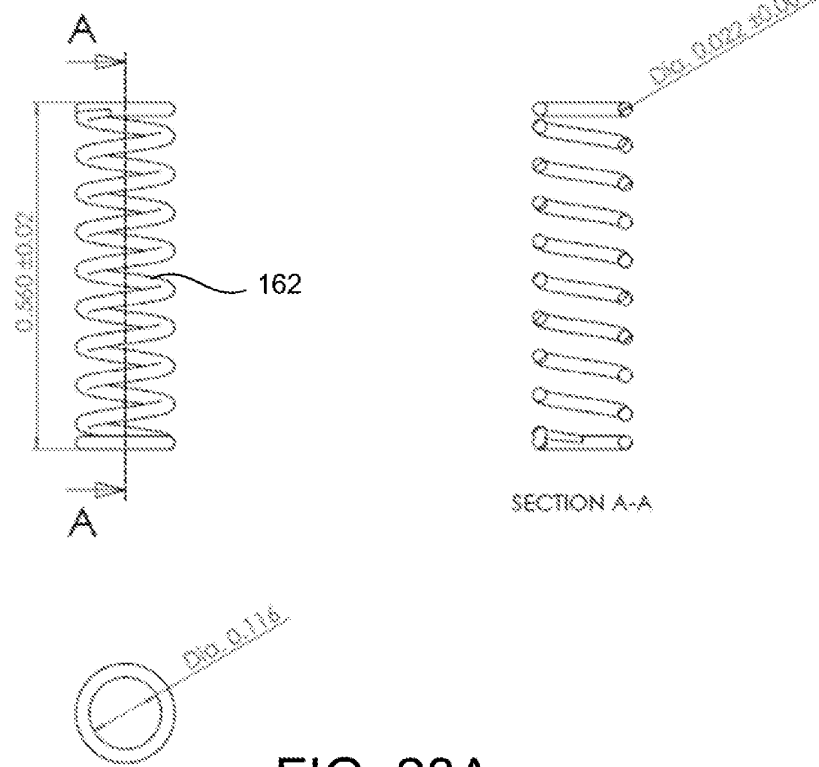


FIG. 28A

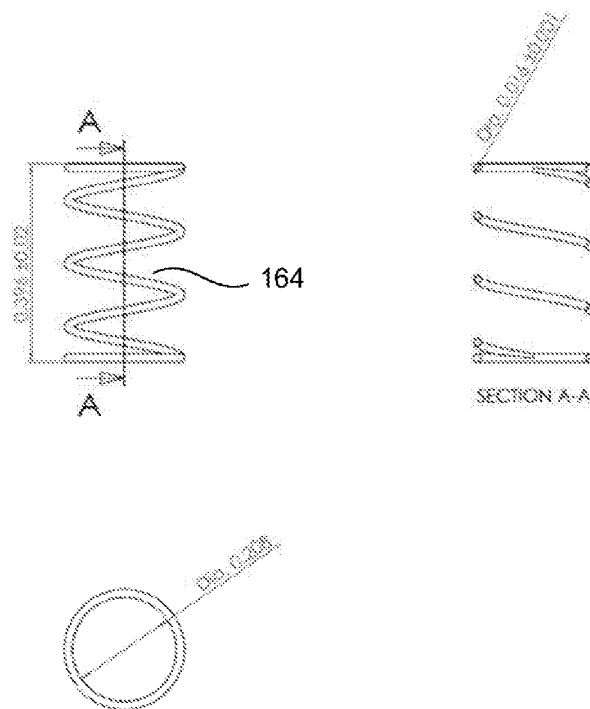


FIG. 28B

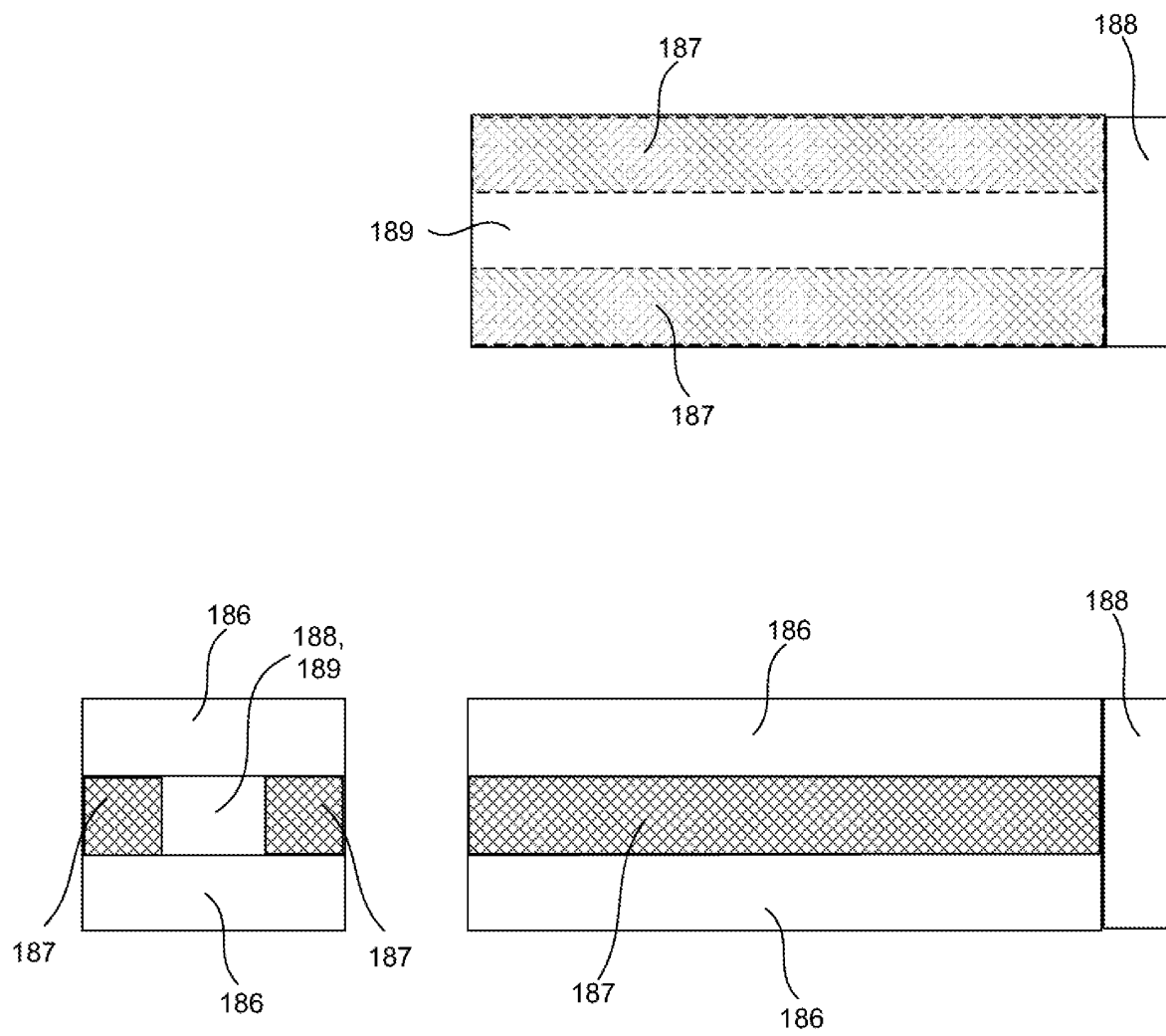


FIG. 29

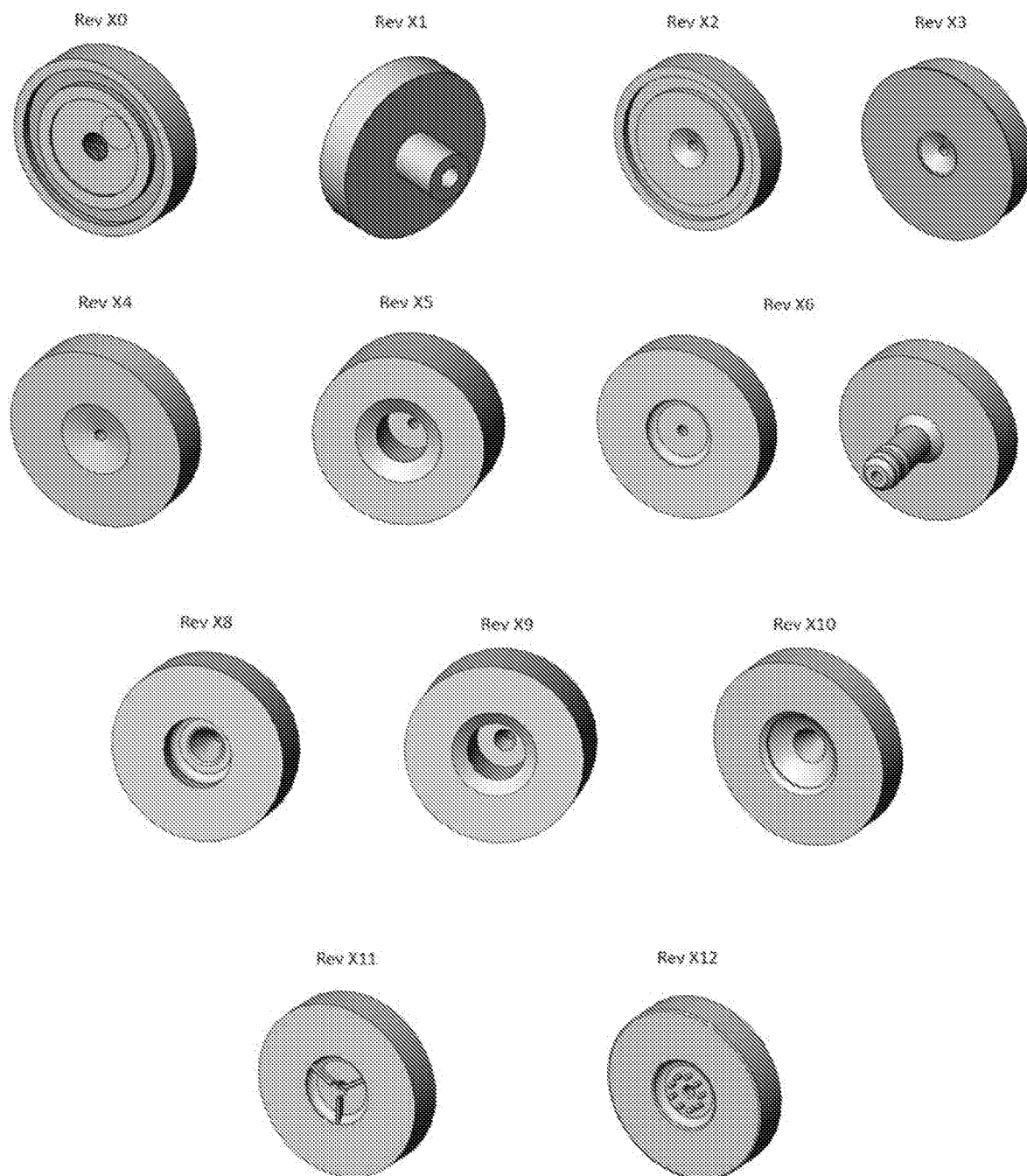
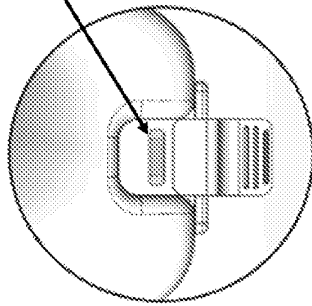


FIG. 30

FIG. 31C

Visual
Metering
Window



Clip-in Removable
Cartridge

Cartridge
Tab

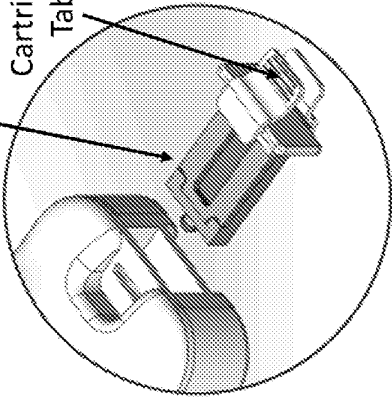


FIG. 31D

Skin-vacuum /
lancing cavity

Vacuum
Button

Inner
diameter

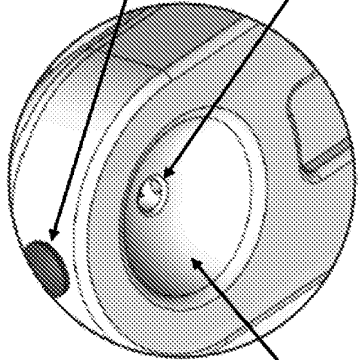
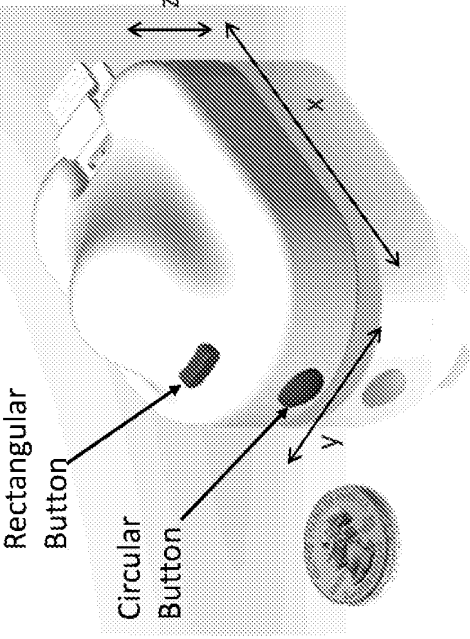


FIG. 31B

FIG. 31A



Full Device (2.5" x 1.75" x 1.65")

Concave
Cavity

FIG. 32A

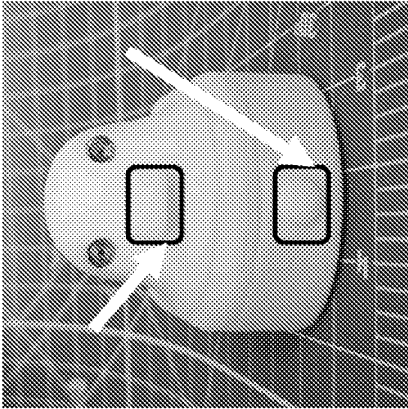


FIG. 32B

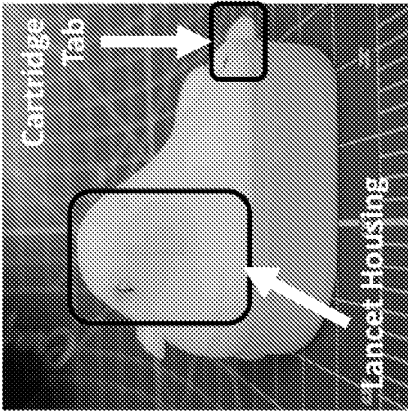


FIG. 32C

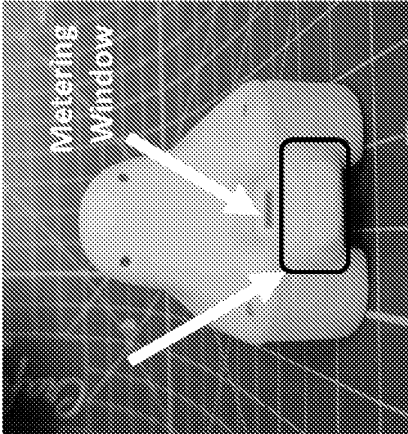


FIG. 32D

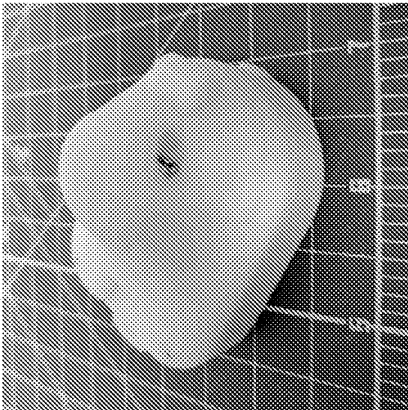


FIG. 33B

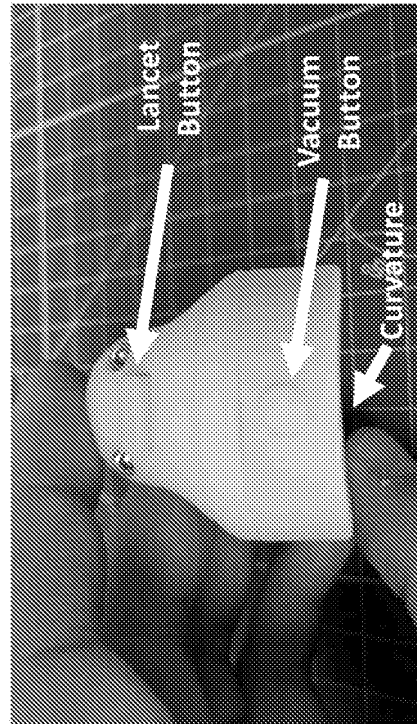
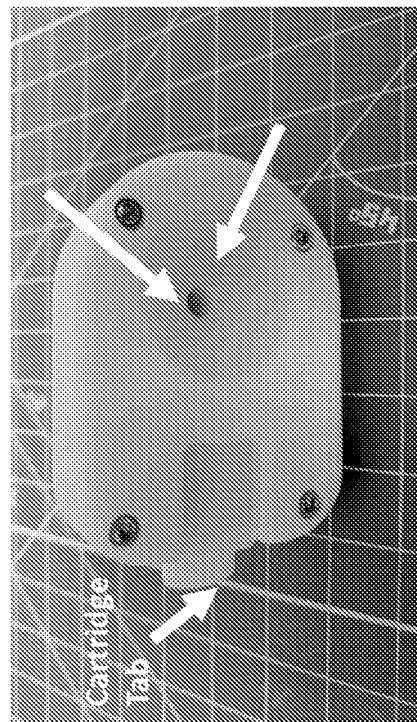


FIG. 33A



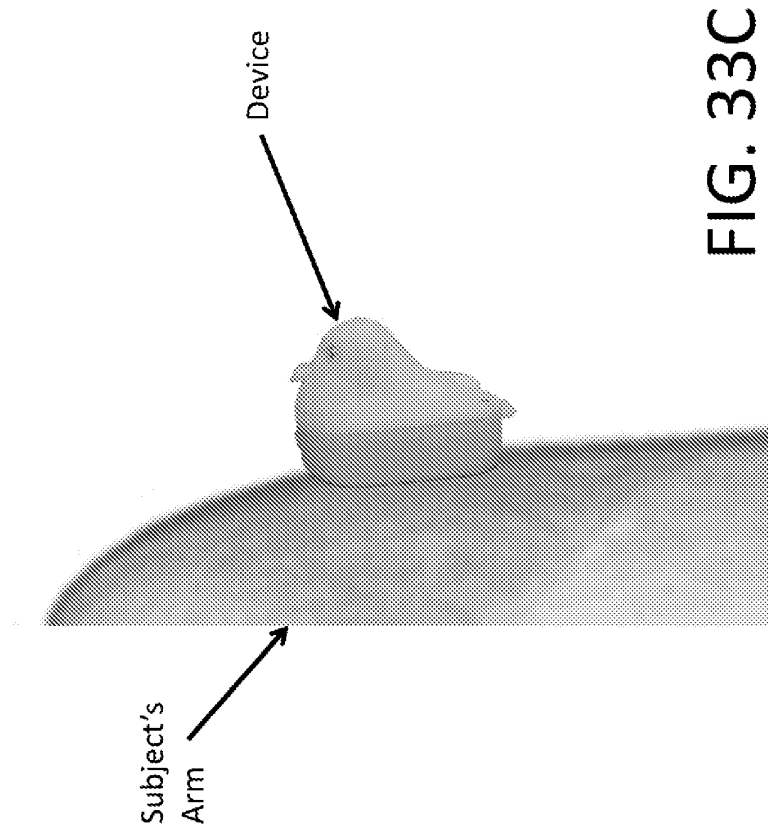


FIG. 34A

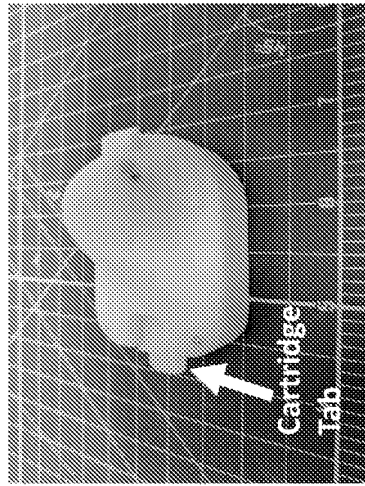


FIG. 34B

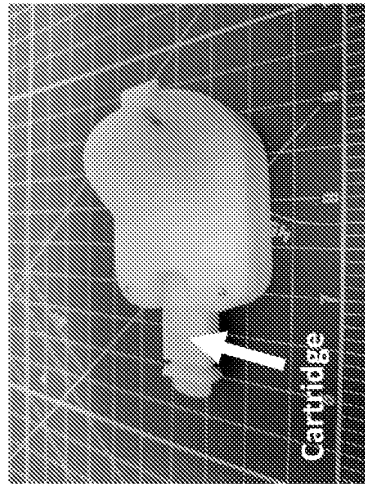


FIG. 34D

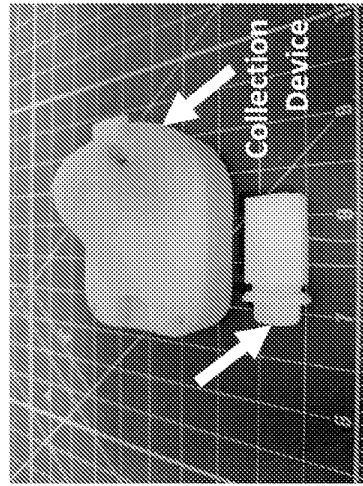
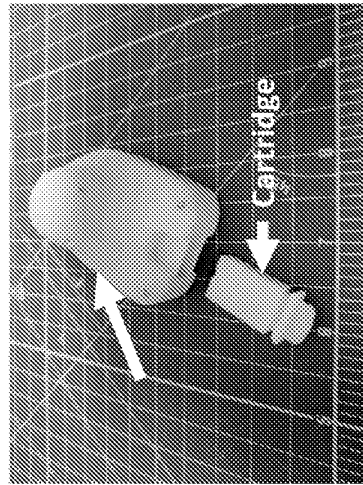


FIG. 34C



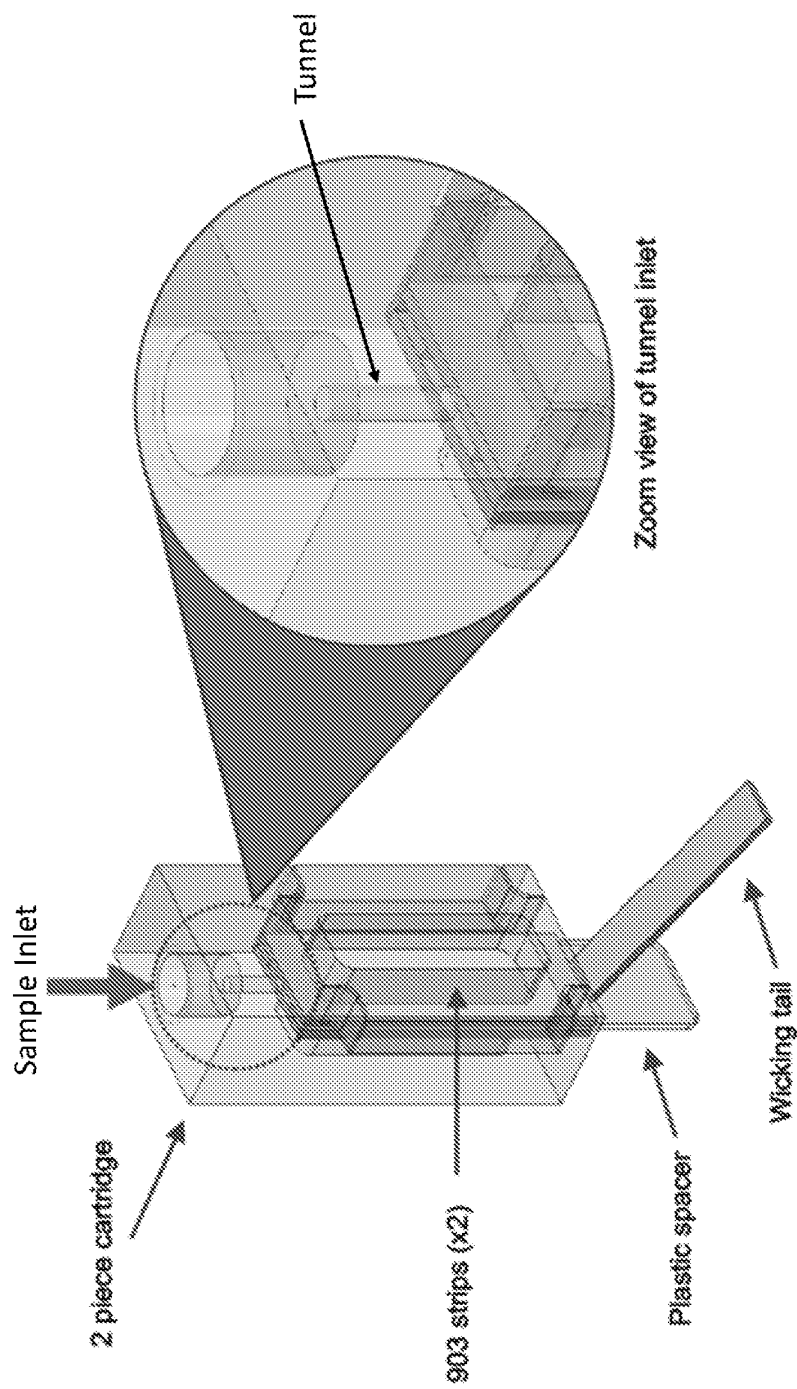
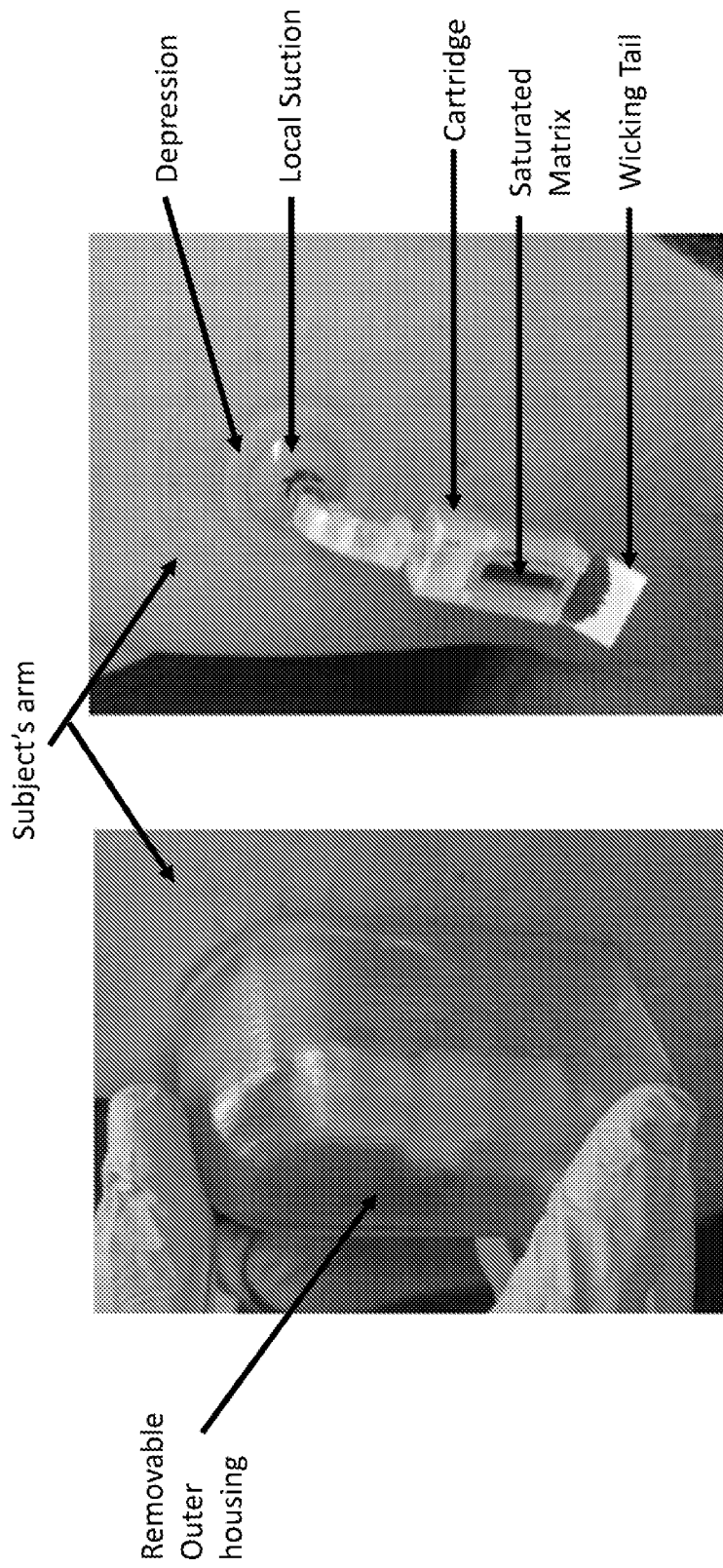


FIG. 35



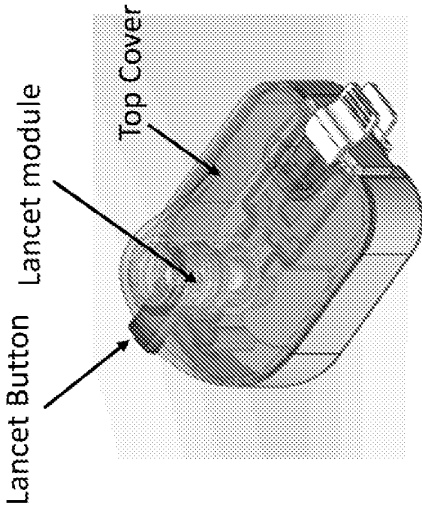


FIG. 37A

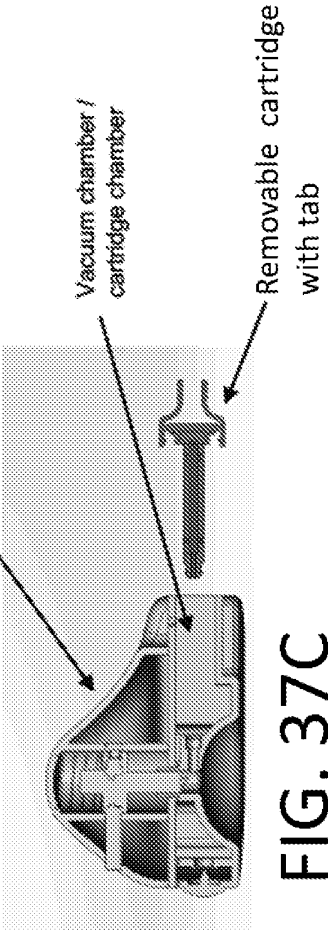


FIG. 37C

- Modular Design**
- 1. Top Cover / Lancet module
 - 2. Vacuum chamber / cartridge chamber
 - 3. Deposition cartridge

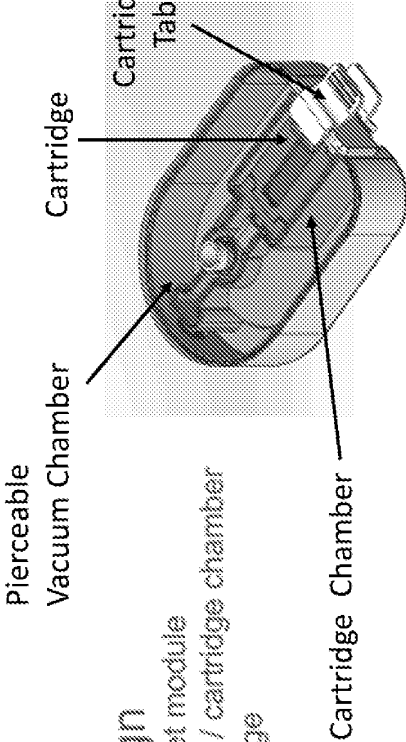


FIG. 37B

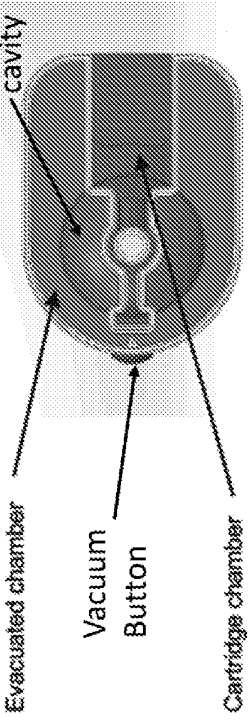


FIG. 37D

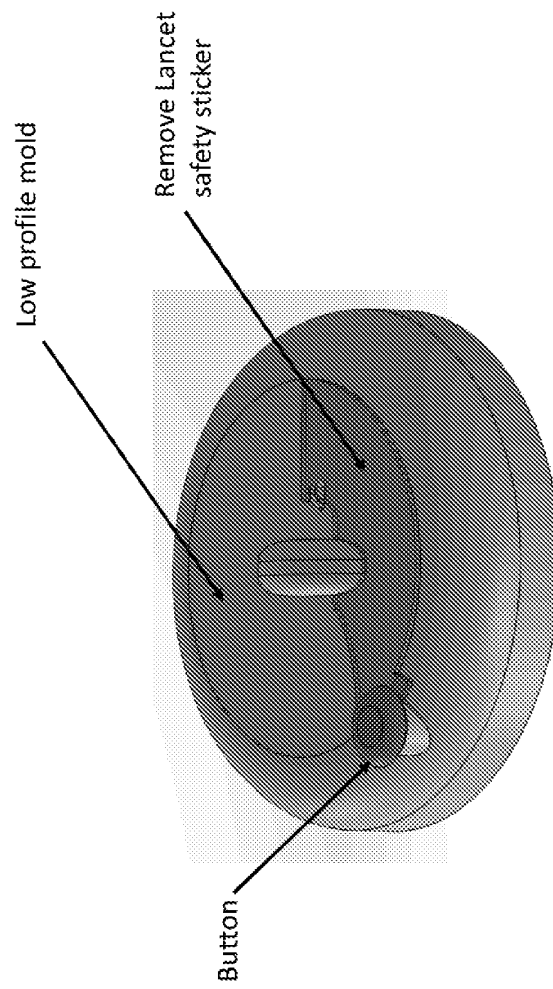
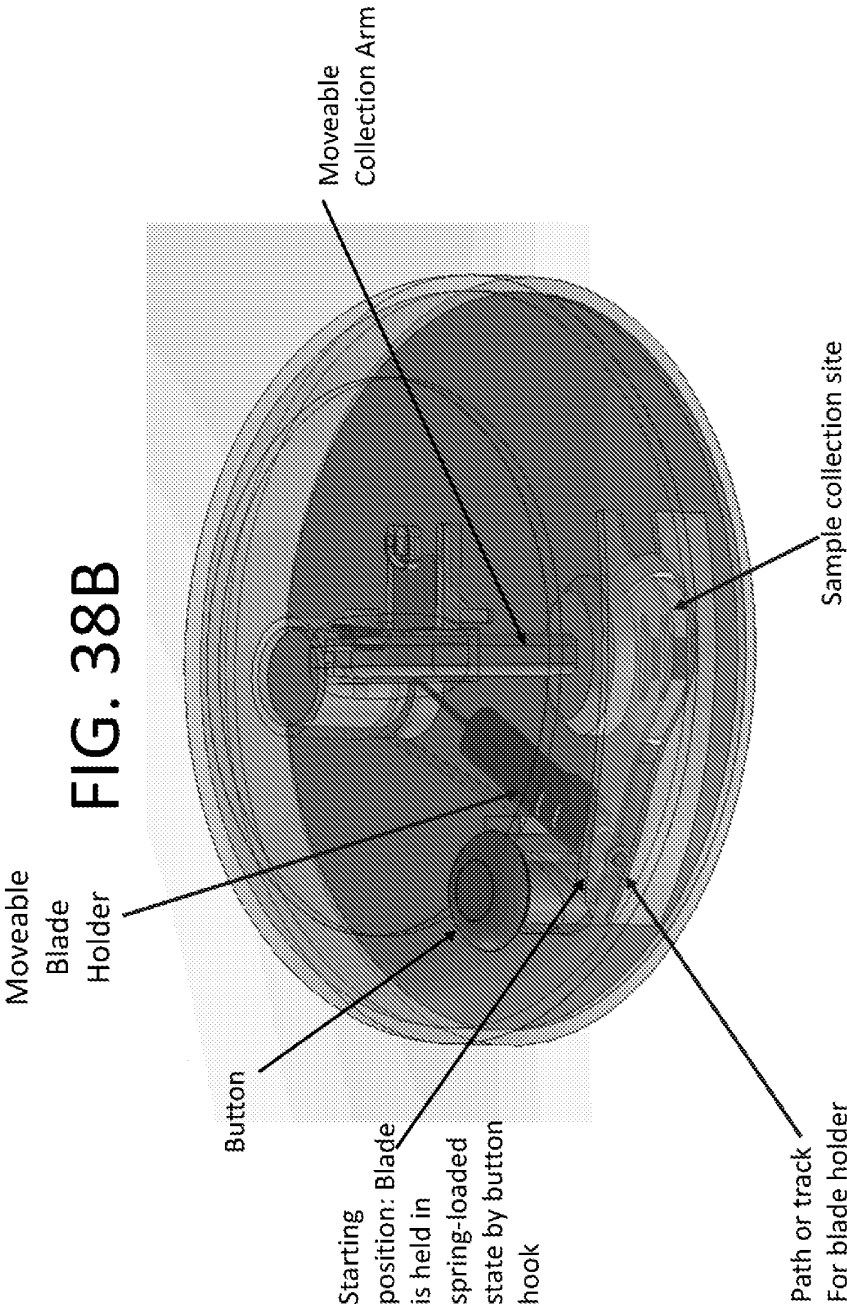
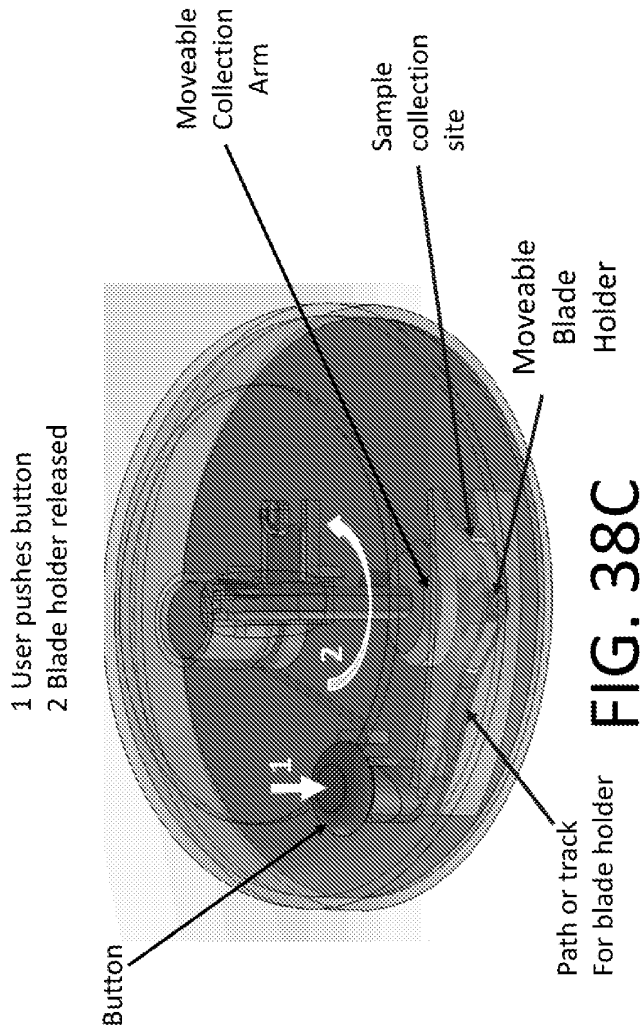


FIG. 38A

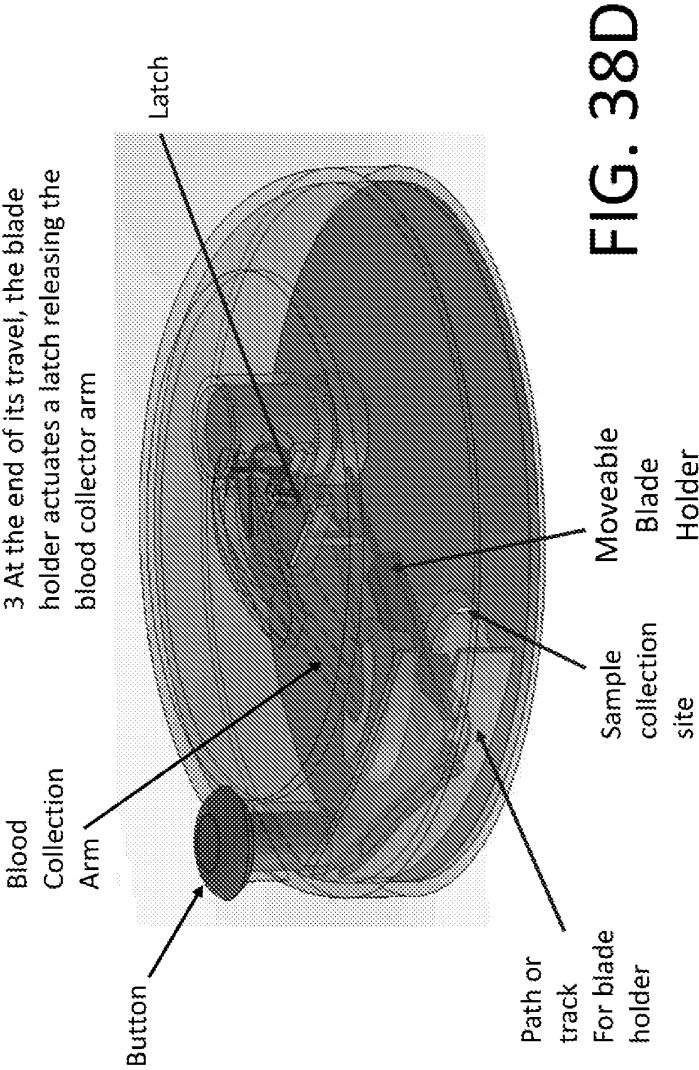
10



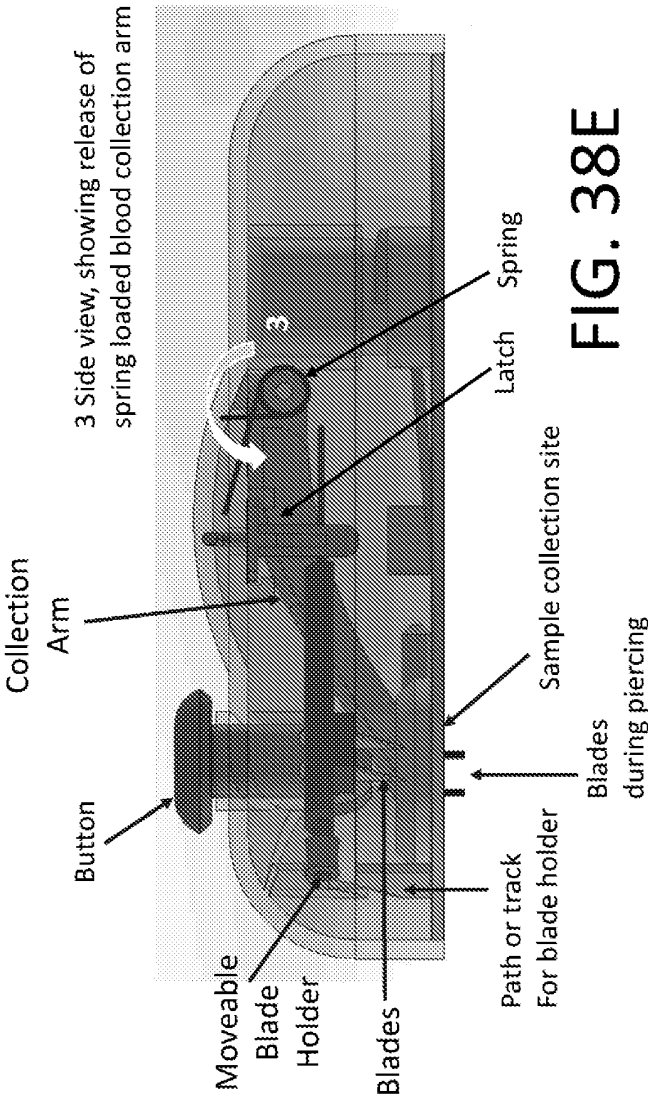
11



12



13



14

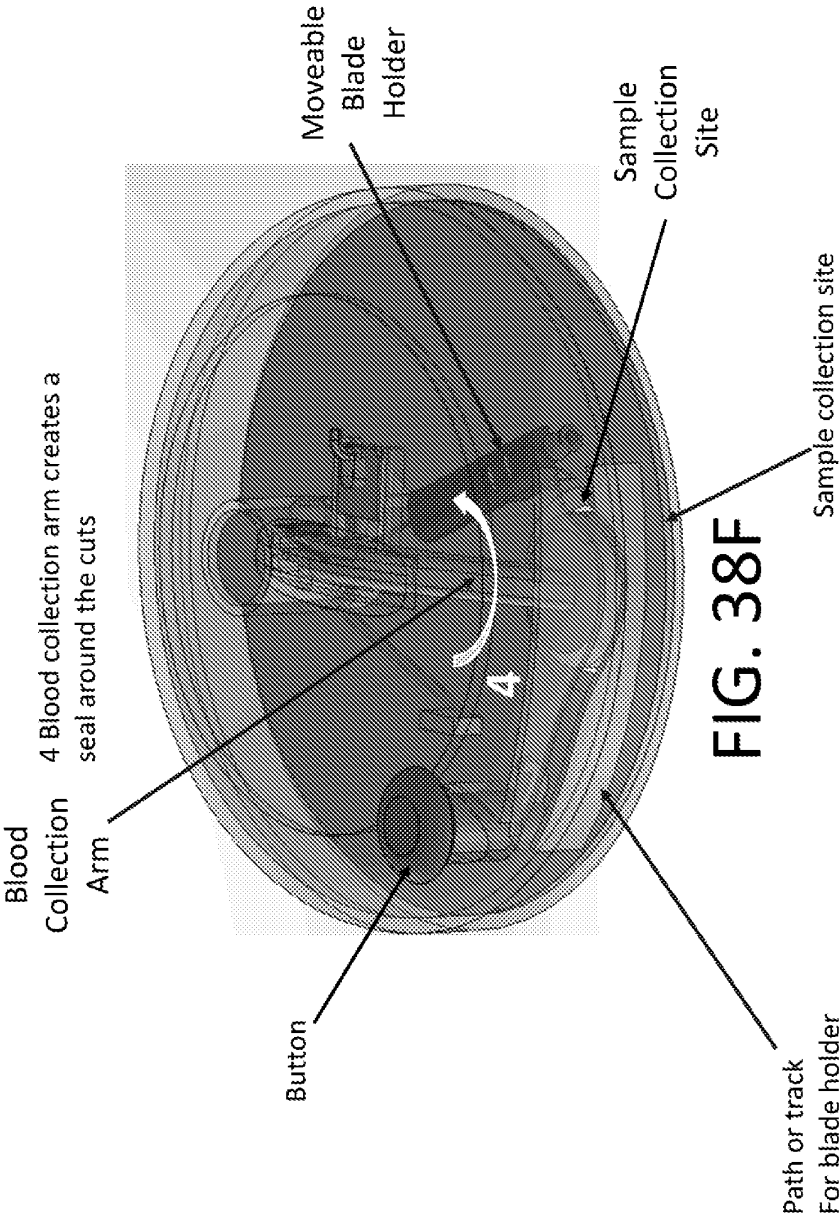


FIG. 39A_{Top}

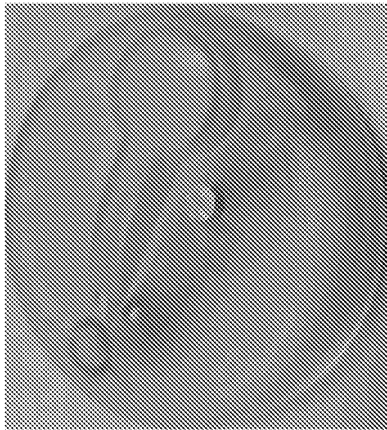


FIG. 39B_{Bottom}

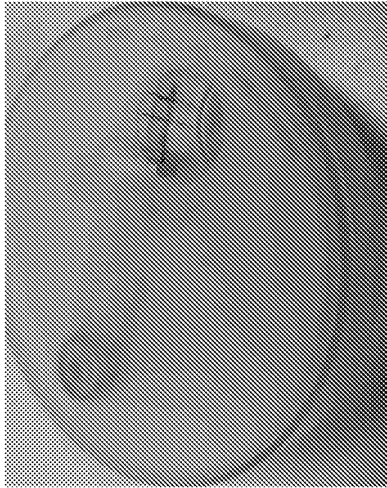


FIG. 39C_{Side}

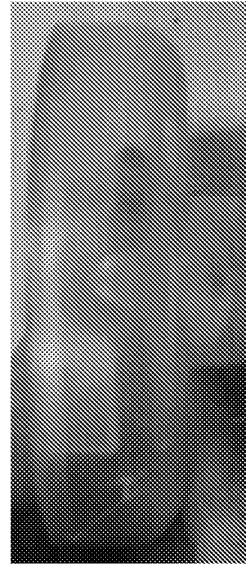


FIG. 39E

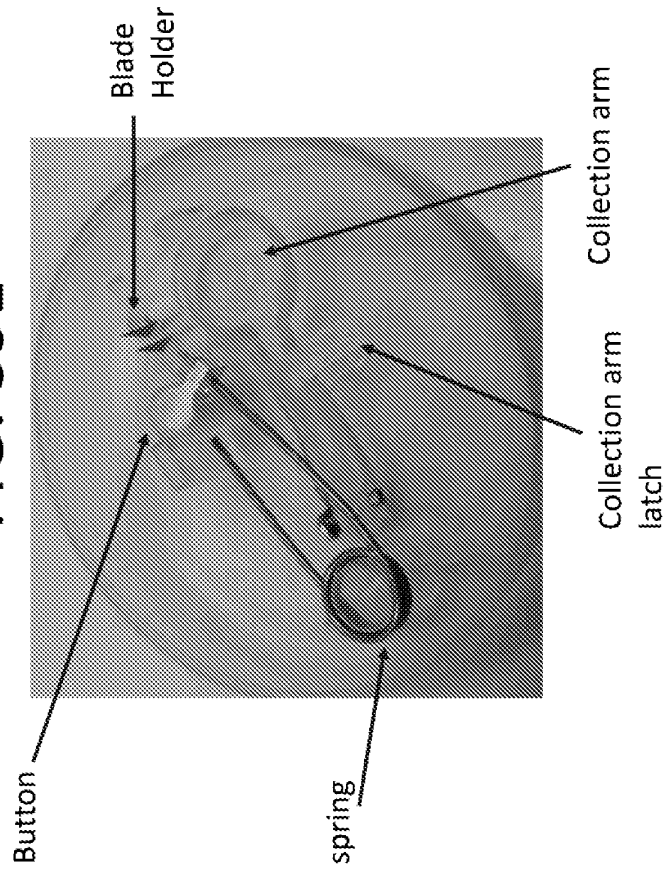
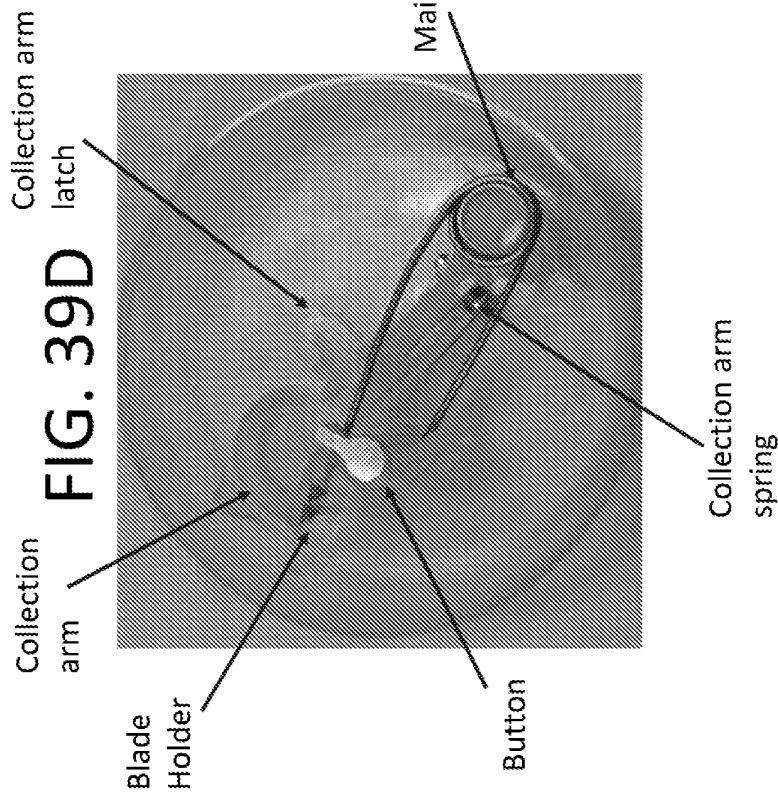
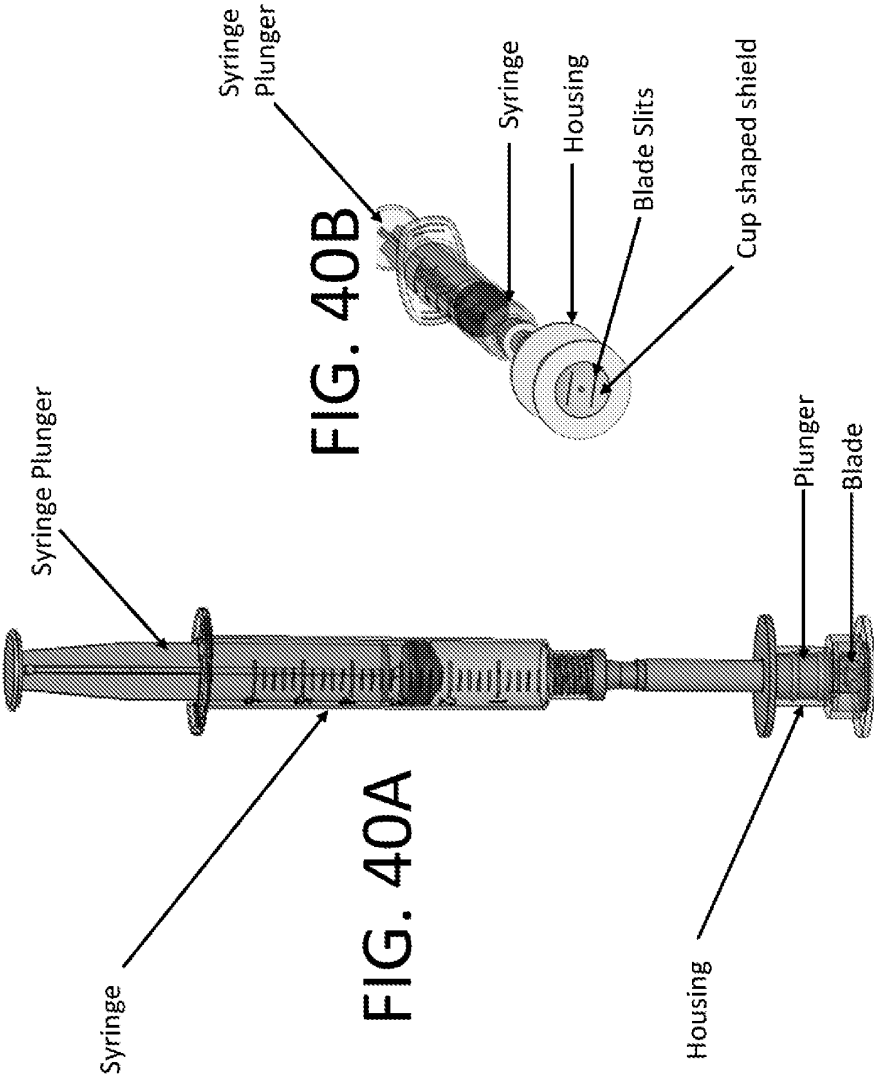
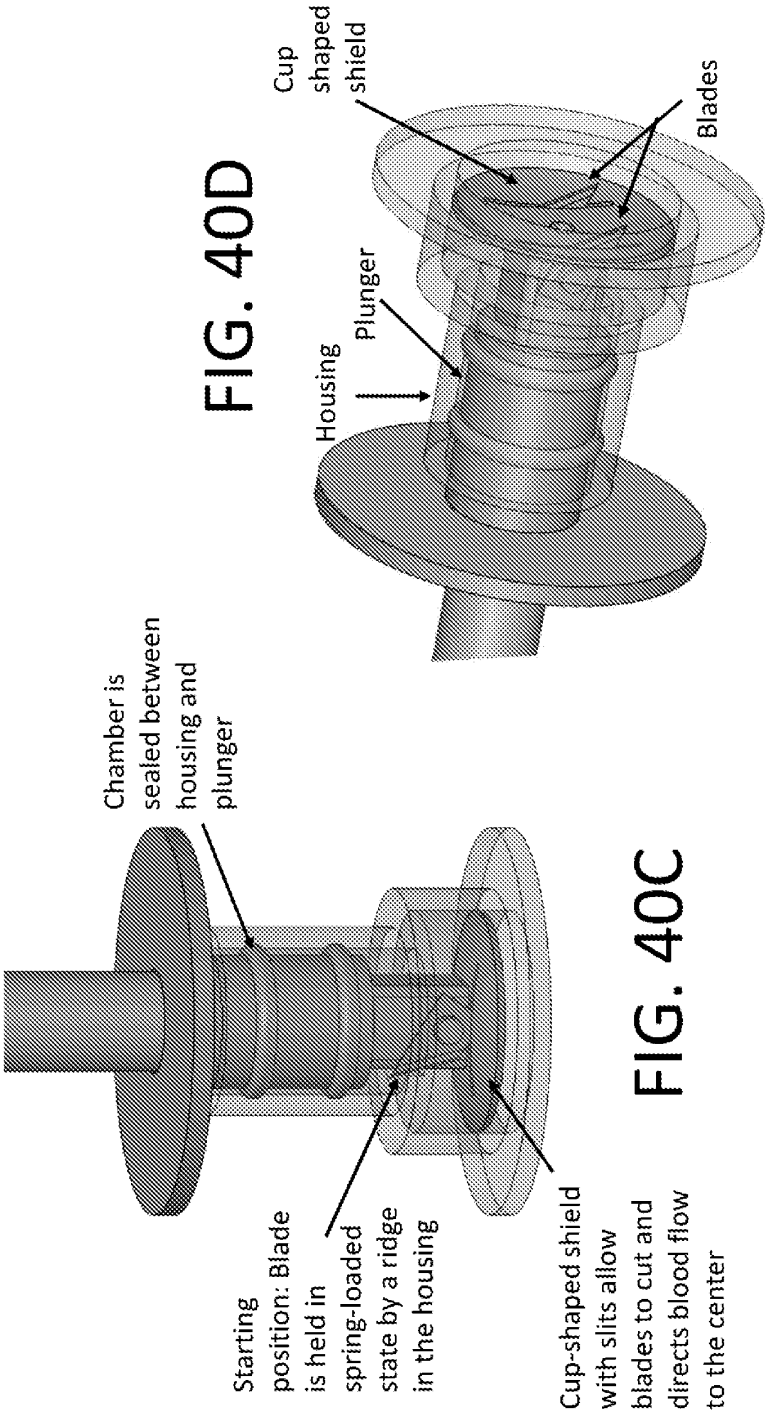


FIG. 39D



17





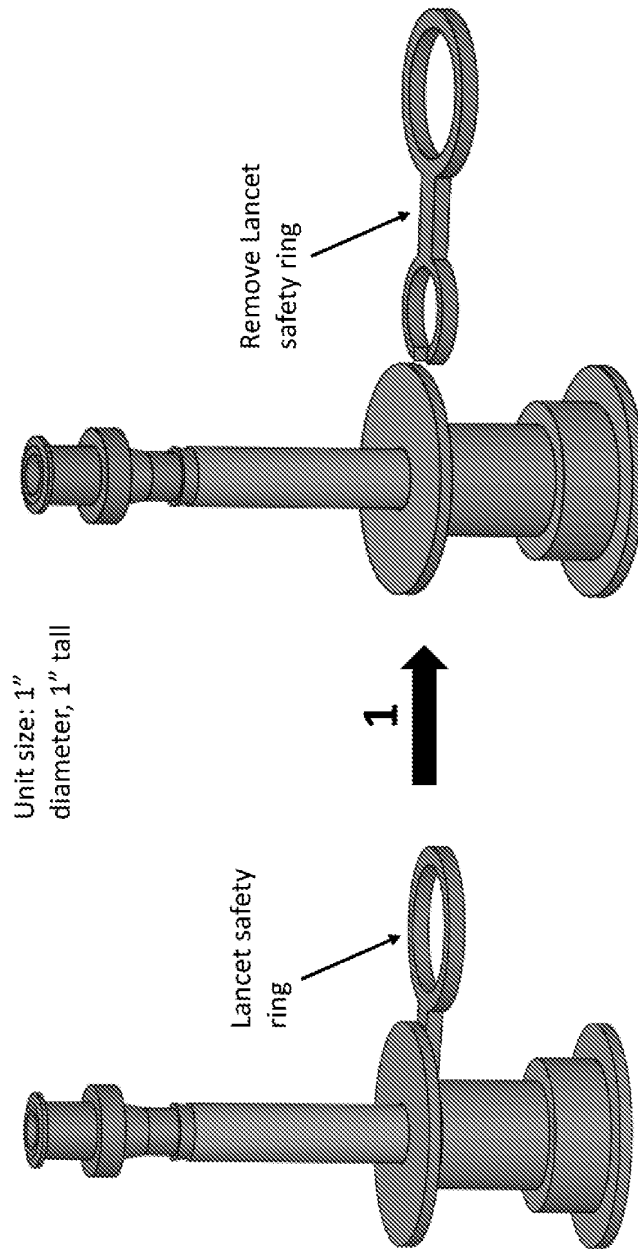


FIG. 41A

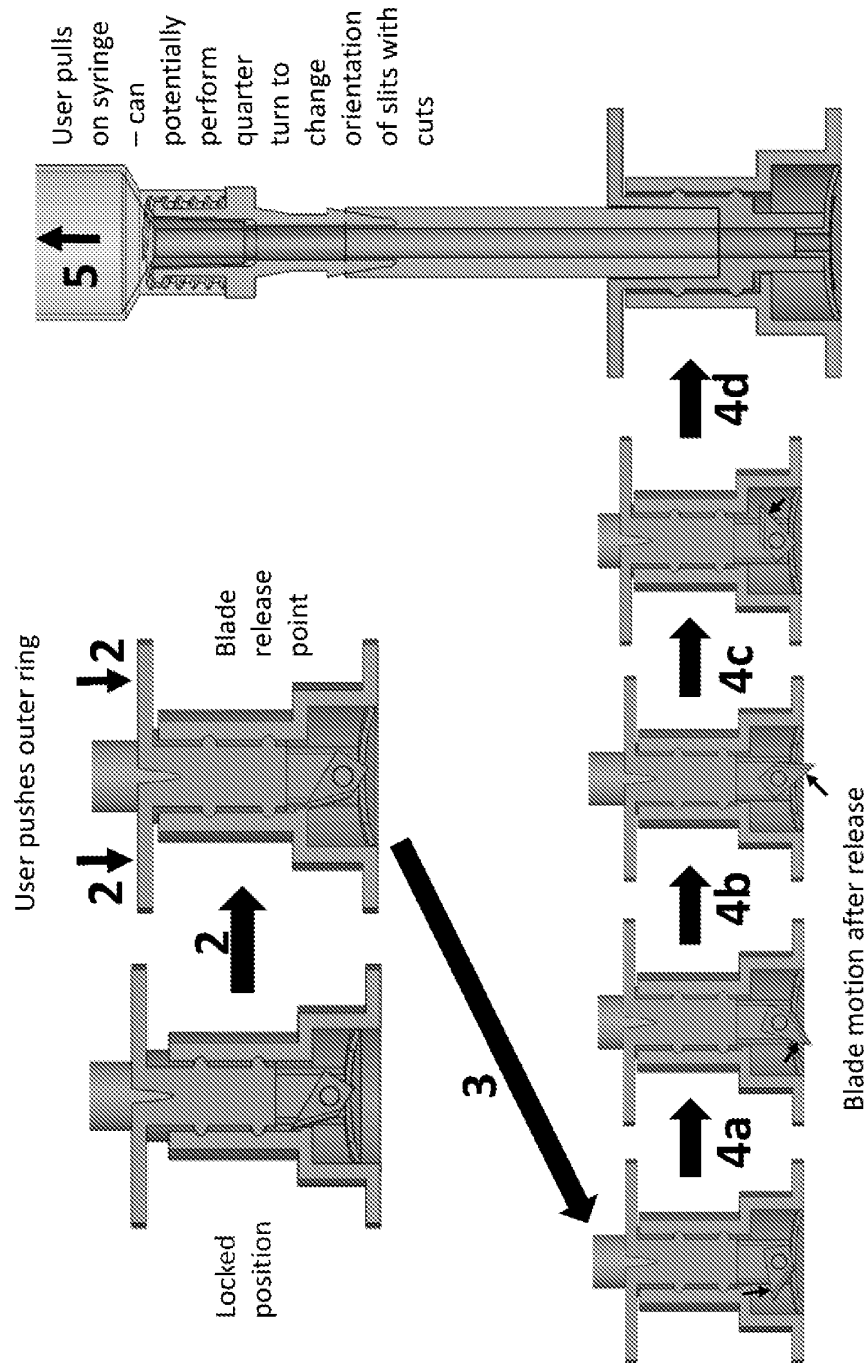


FIG. 42B

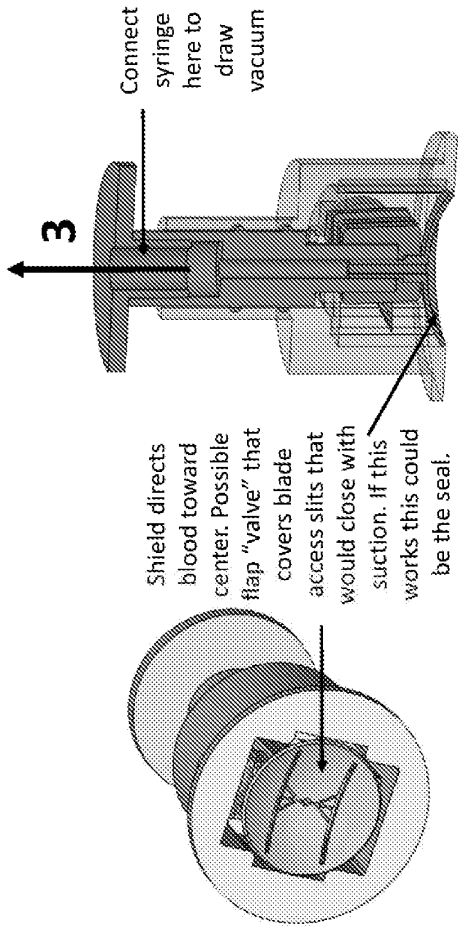
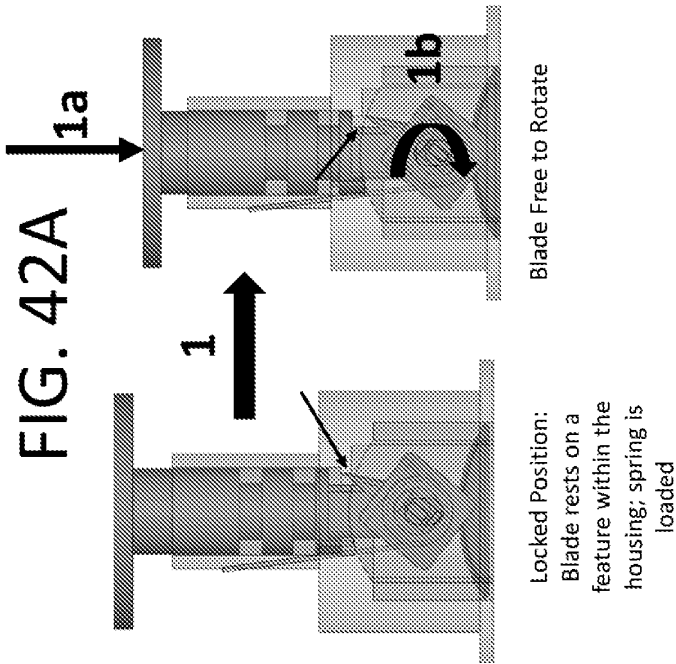
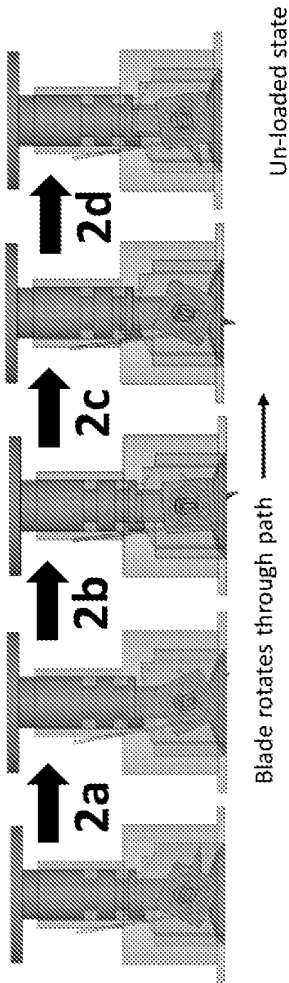


FIG. 42C

2 mm D x 1.5 mm W cut
Contact-activated plunger

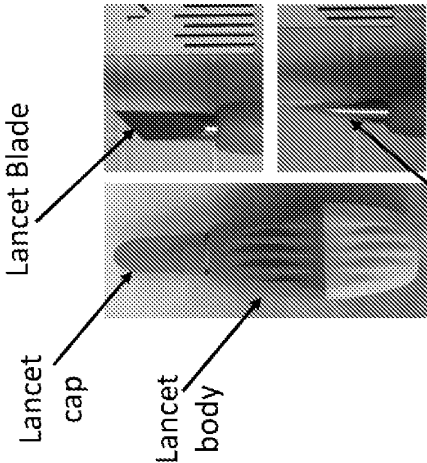
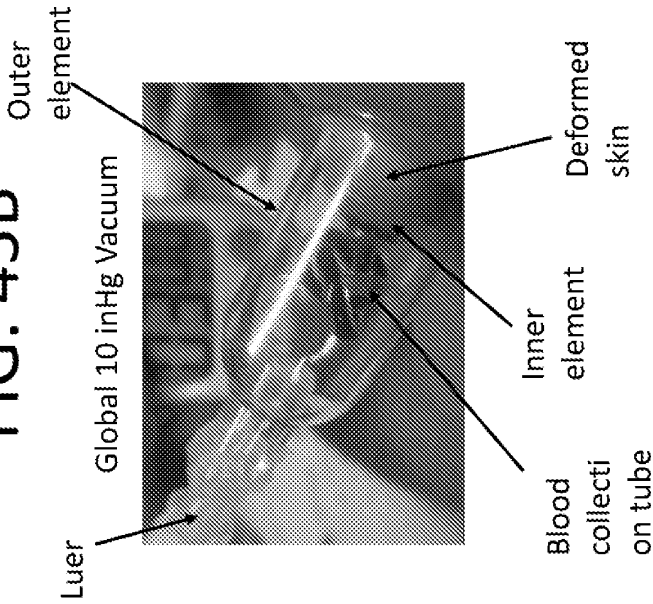


FIG. 43A
BD High-Flow
Lancet

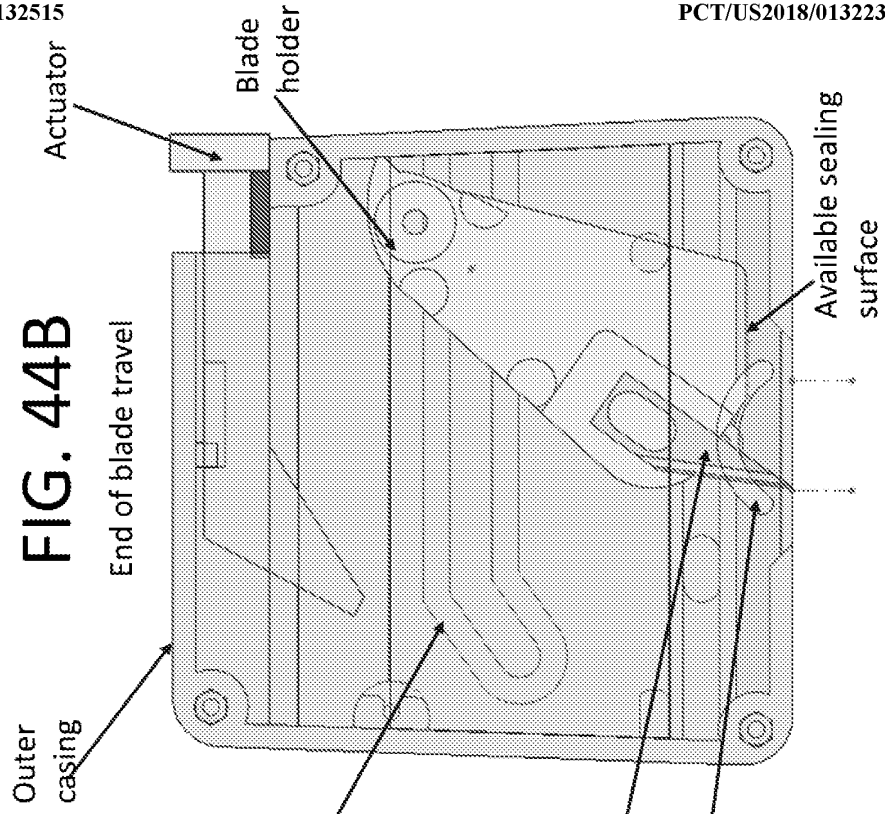
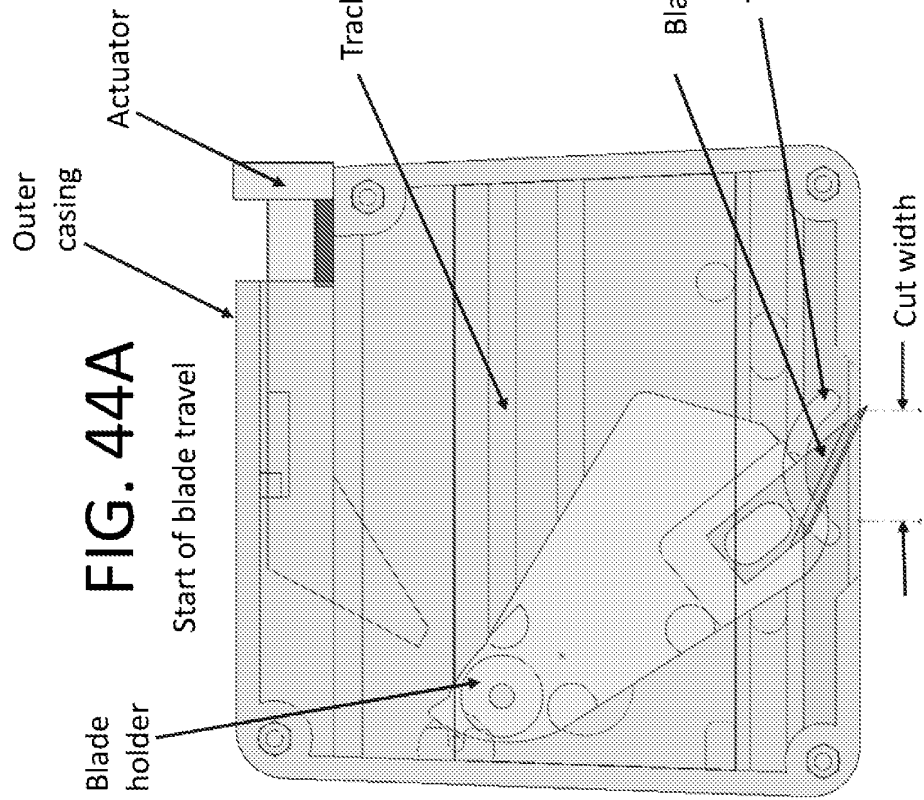
FIG. 43B

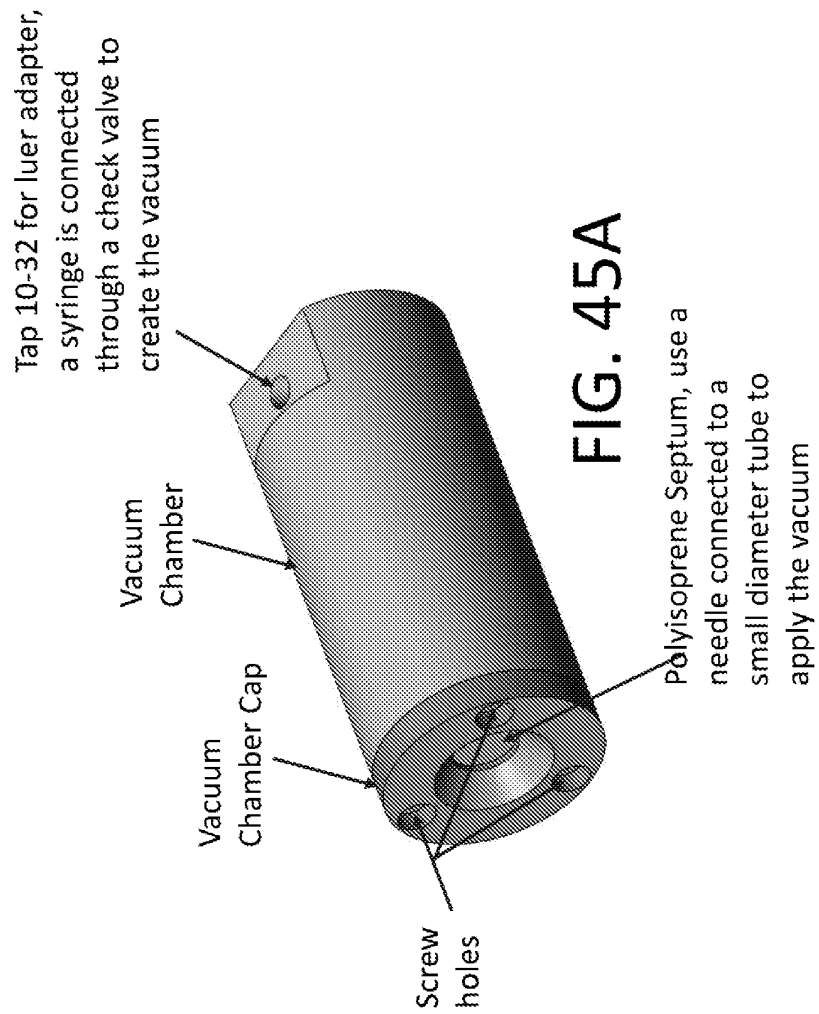
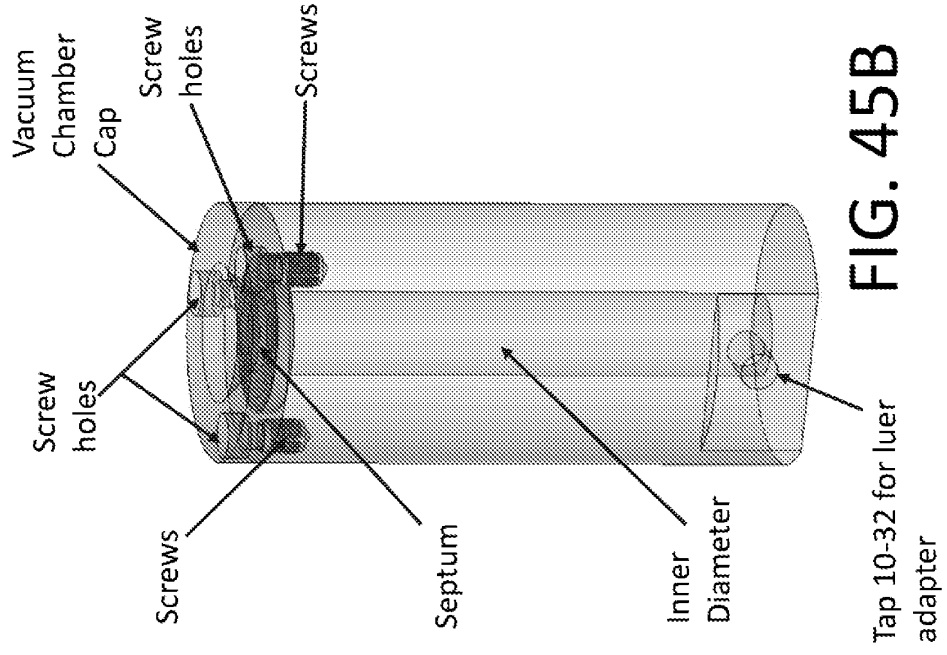


Draw Times
Targeting 250 uL

Global Vacuum with 25mm Cup and Suction Cup + Measured Tubing (2x BD High Flow)		
Draw	Blood Volumes {uL}	Draw Times (min)
1	232	2.2
2	236	3.5
3	245	1.7
4	245	1.8
5	262	1.8
6	236	1.0
7	261	1.5
Ave		245
Std Dev:		12.2
Ave Draw Rate:		127

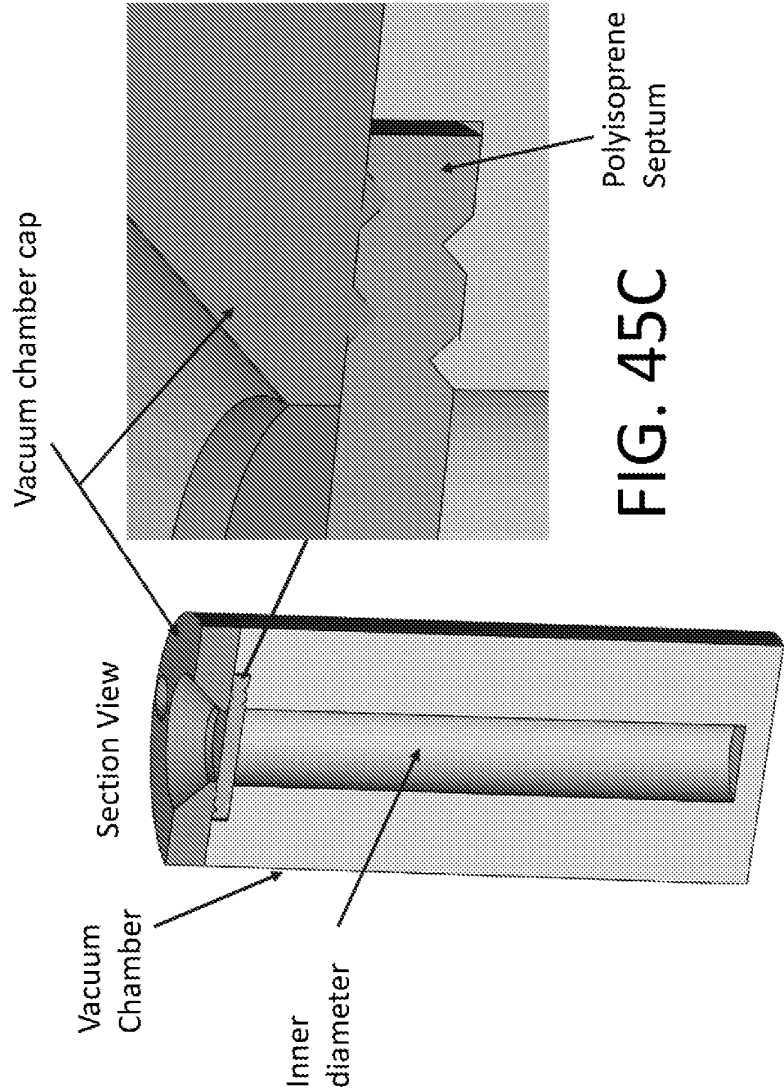
- Using 2X high-flow lancet, ~250 uL draws achieved in ~2 min





25

Example of hypodermic needle for piercing the septum, any manufacturer is good



Polyisoprene
Septum

FIG. 45C

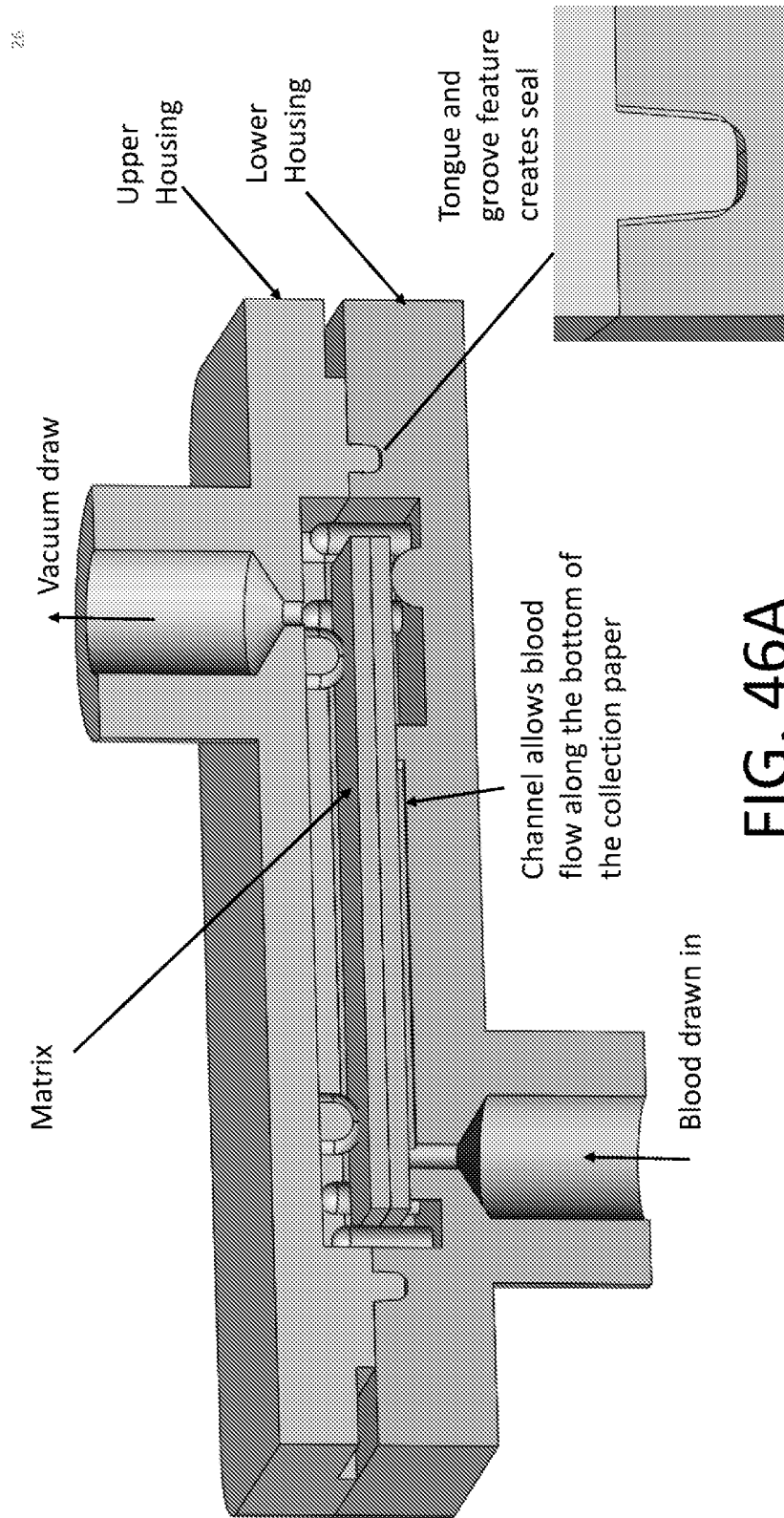


FIG. 46A

27

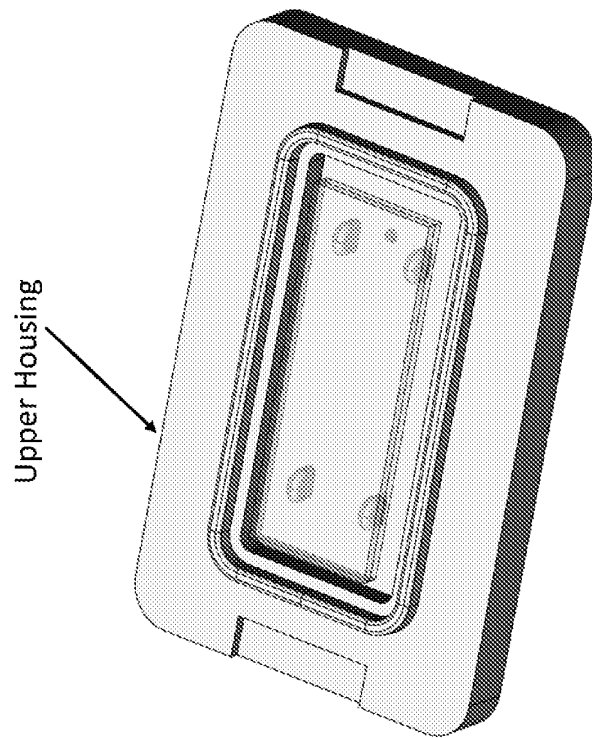


FIG. 46C

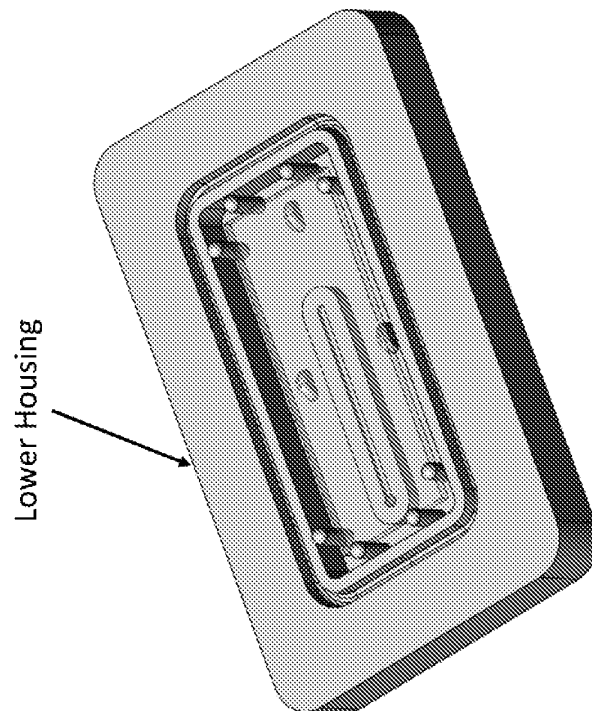


FIG. 46B

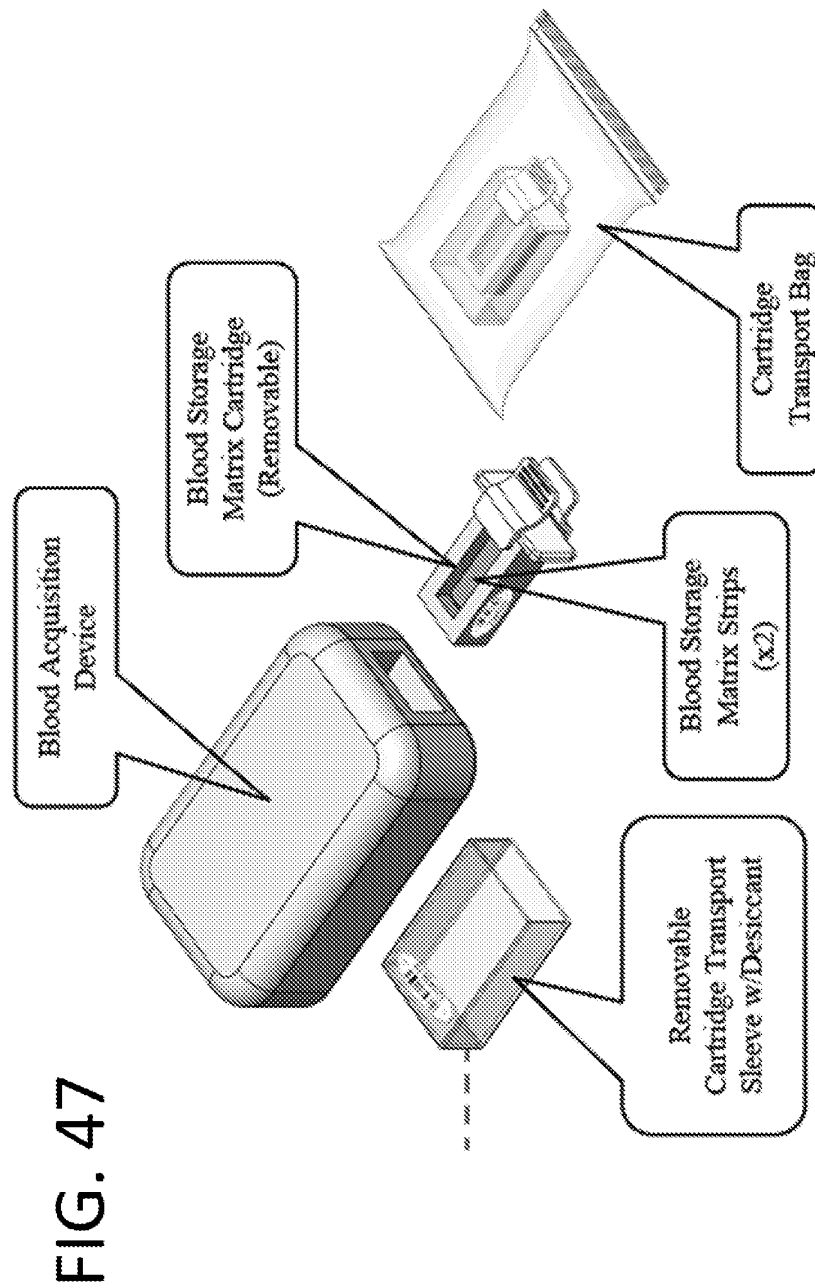


FIG. 48

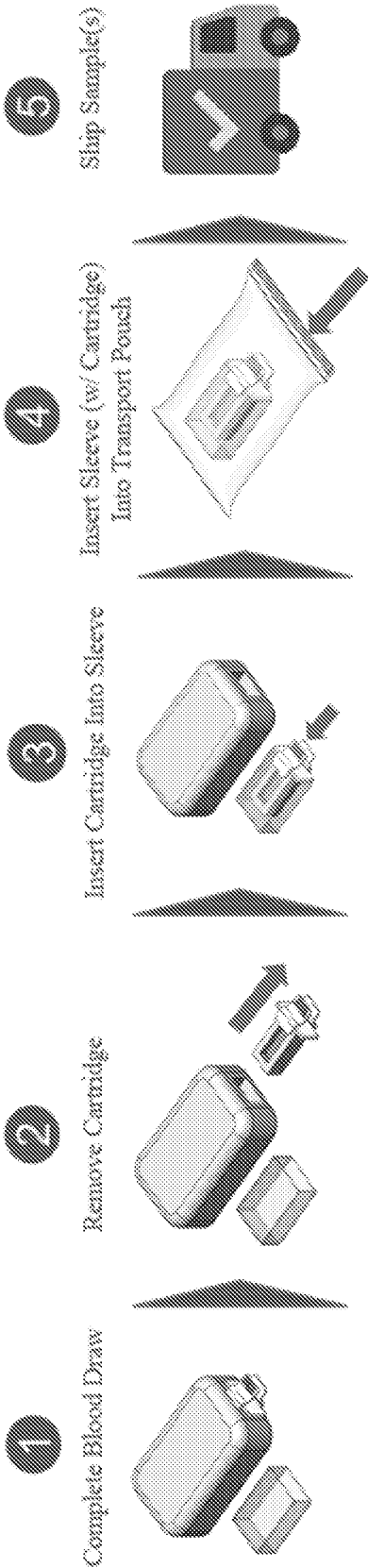


FIG. 49

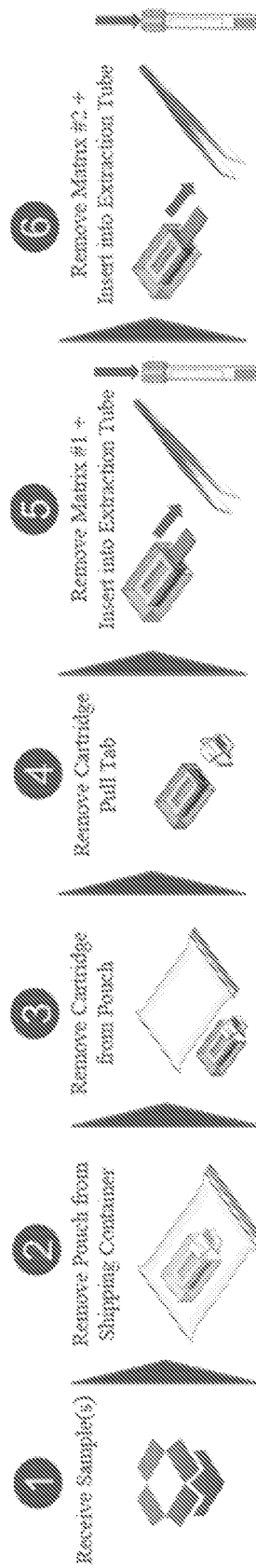


FIG. 50B

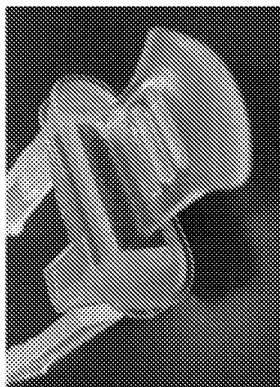


FIG. 50C

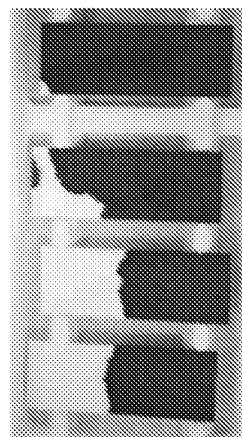


FIG. 50A

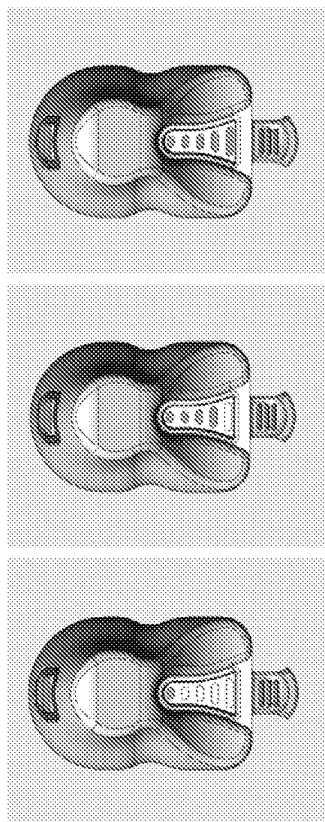


FIG. 51

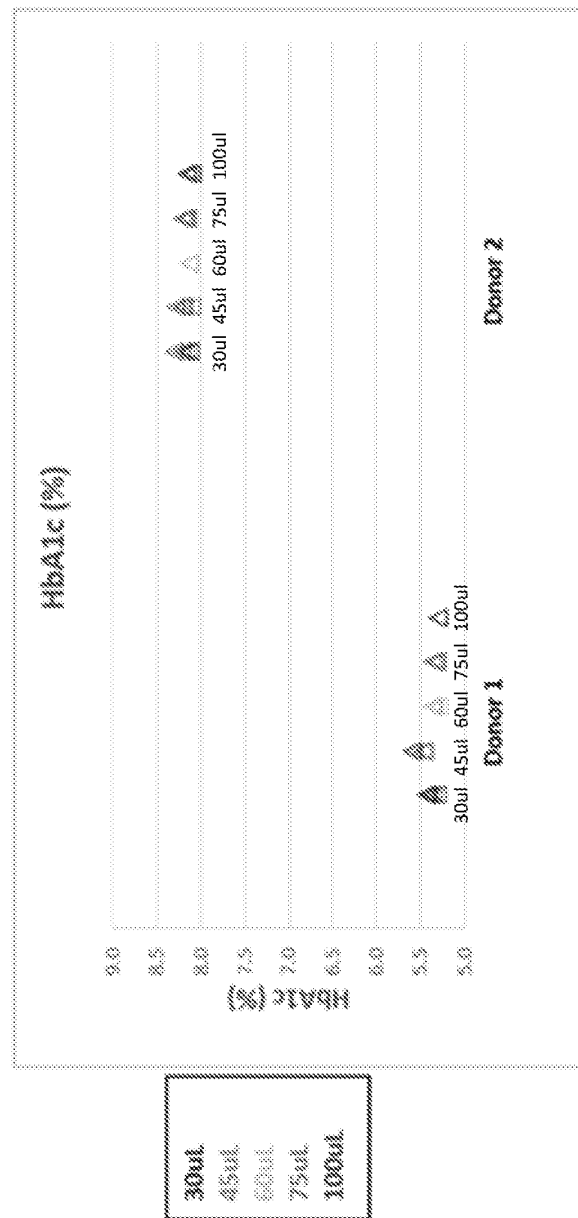
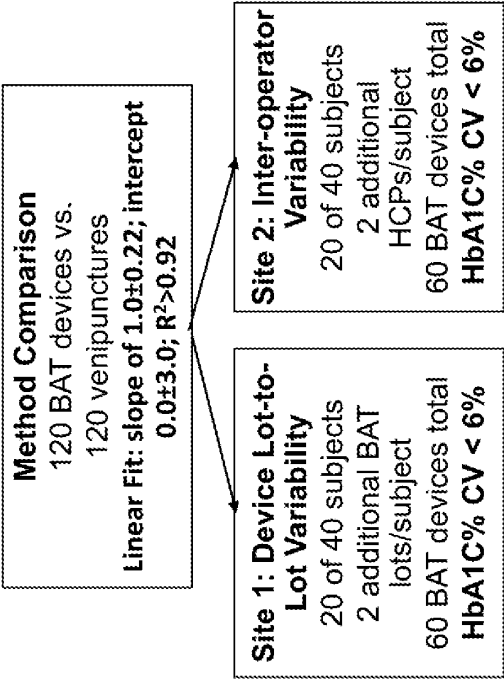


FIG. 52

120 subjects,
3 blood collection sites,
~40 subjects/site



Study	Subjects	# Lots	# Devices
Method Comparison	120	1	120
Lot-to-Lot	20	3	60
Inter-operator	20	1	60

FIG. 53

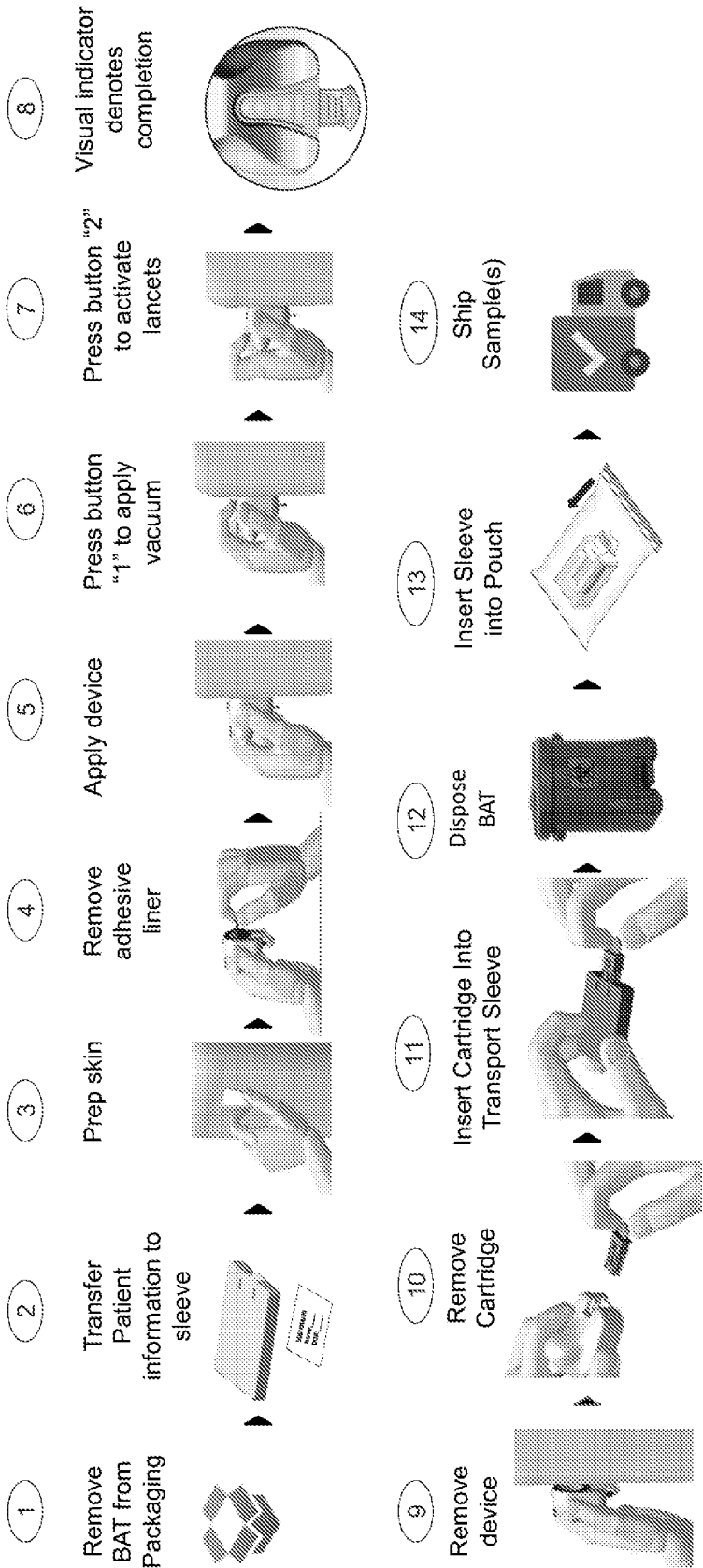


FIG. 54

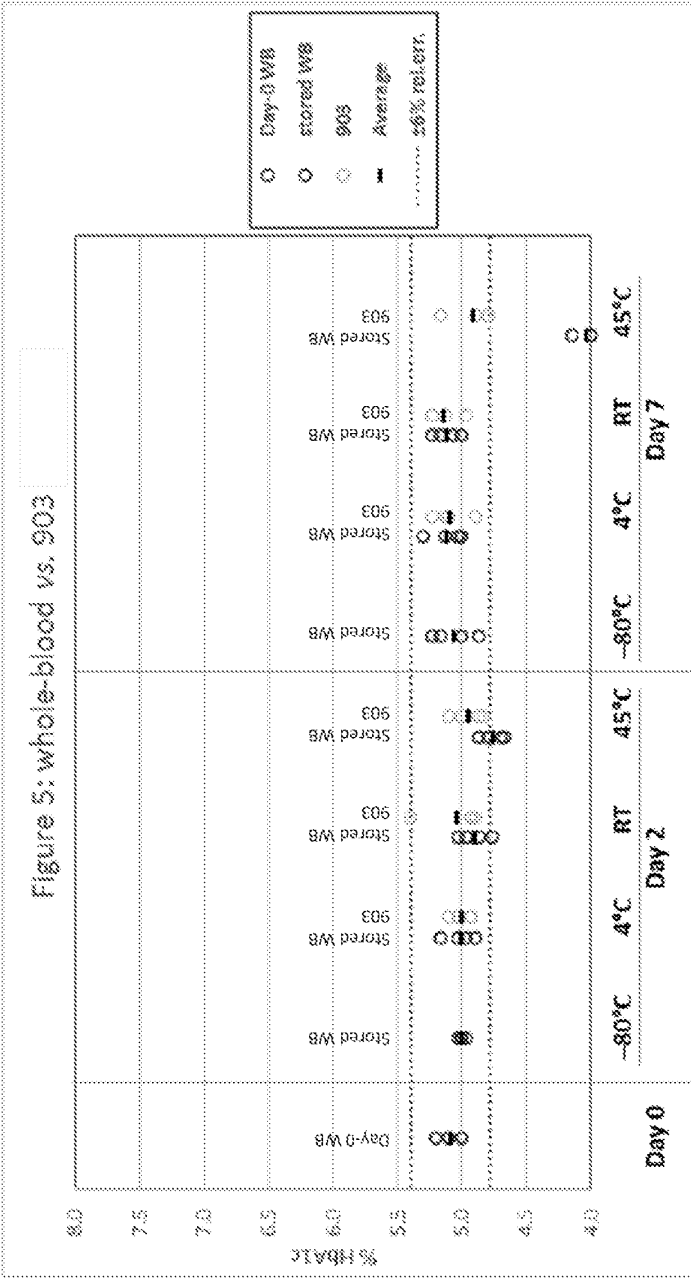


FIG. 55

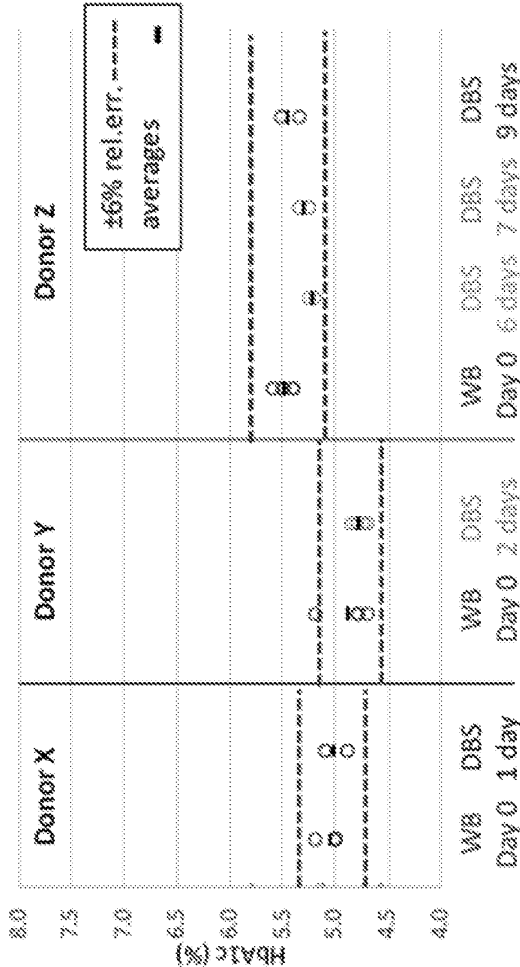


FIG. 56

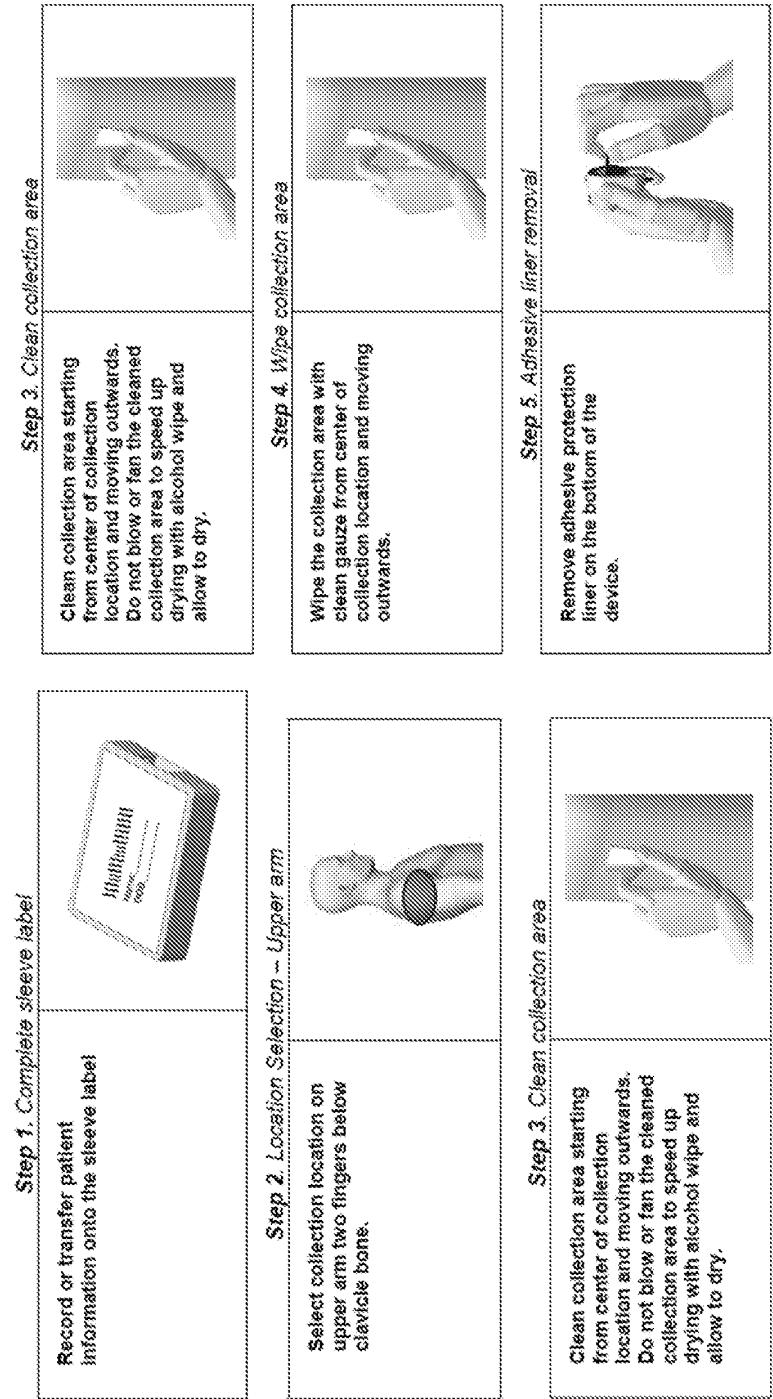


FIG. 56
Continued

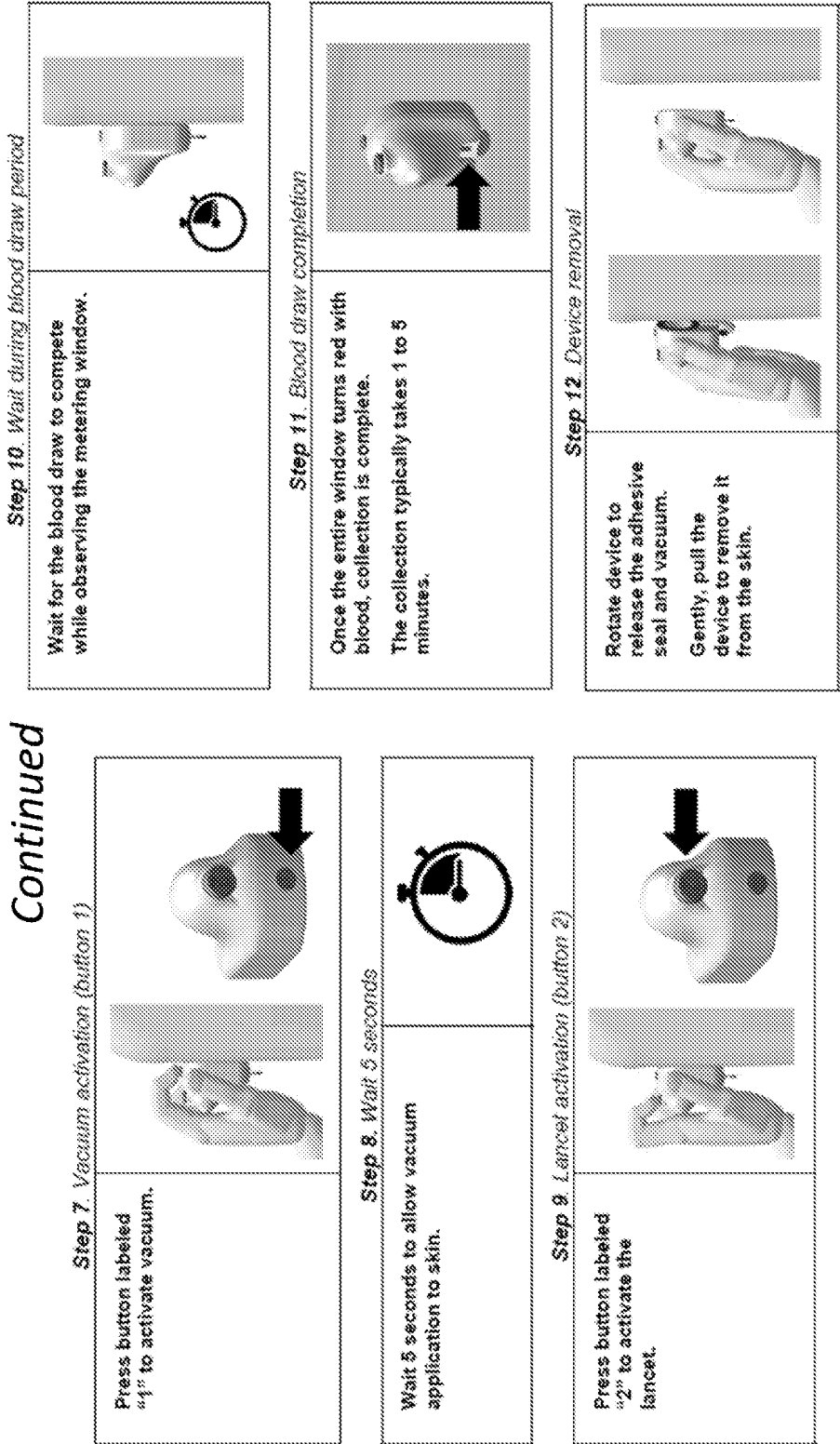


FIG. 56
Continued

